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Christmas Greetings and my every good wish that the New Year may bring progress to our Arm, and the fullest possible measure of happiness and prosperity to our personnel.

R. M. DANFORD,
Major General, U. S. Army,
Chief of Field Artillery.

Courtesy Charles Sessler, Philadelphia.

THE CAISSONS GO ROLLING ALONG
Dry-point Etching by Kerr Eby

THE FIELD ARTILLERY JOURNAL

VOLUME 28 NOVEMBER-DECEMBER, 1938 NUMBER 6

Fitting the Means to the Ends

BY COLONEL RICHARD C. BURLESON, FA

IN order to obtain military victory over France and England before the American intervention, the German High Command could not, in 1918, be contented with a tactical victory, a simple forcing-back of the Franco-British front, or a simple gain of terrain, no matter how important tactically. Such a result would only delay the final decision. The German armies had to have a strategical victory such as the complete destruction of one of its adversaries, in order to force the other to sue for peace. This decisive victory would have to be obtained prior to the American intervention in force and consequently, in a relatively short space of time—four to six months.

This offensive required powerful means because it was necessary to commence with an attack against a fortified area and then to destroy, on the front, or in the rear, the enemy reserves, in order to accomplish finally a penetration, or an imminent threat of penetration into territory containing no defenders.

What was then the force which was at the disposal of the German High Command in the Spring of 1918? Its value depended upon: First, the number of divisions; second, the existing resources of the depots of the front and the interior, in soldiers who would be required to replace the losses of the divisions in combat; third, the mobility of the forces; and fourth, the material means (artillery, aviation, munitions, tanks, and supply trains).

Divisions

At the end of the British Flanders offensive, November, 1917, the German forces on the Western Front consisted of 150 divisions and 3 infantry brigades. The victory of Caporetto and the breakdown of the Russian resistance permitted the German command to bring from Italy the divisions that it had momentarily engaged in that region; and from the Eastern Front the greater part of the divisions which were located there at that time. From the middle of November, 1917, when the movement began, until the middle of March, 1918, there were transferred to the Western Front 42 divisions.

The Allied forces of the Western Front consisted of 172 divisions, 97 French, 57 British, 12 Belgian, 2 Portuguese and 4 American. Hence the German superiority was about 20 divisions. This superiority was in reality less by reason of the fact that the majority of the British and all of the American divisions had 12 battalions whilst the Germans had only 9, as had the divisions of the other countries. On the other hand, Germany was able

Ludendorff Makes an Underestimate of the Situation

to continue to transfer troops from the Eastern Front and did transfer 12 divisions during April and May; but the Allies were able also to recall from Italy 6 French and 5 British divisions, and from Palestine about 60,000 British organized into battalions, and to receive the support of some American divisions. The latter, still insufficiently trained for hard combat, consequently could not be thrown directly into the battle, but they could be used to relieve in some of the calm sectors French and British divisions and thus render the latter available for the main battle.

Thus, during the first months of the offensive, the number of reenforcing divisions to be received by the two adversaries would, for all practical purposes, be the same. The German High Command was then correct in believing that it would retain for a certain time its superiority of 20 divisions. That superiority was not small and the fact must be admitted, but in 1916 and 1917 the Allies had available as great a superiority and did not succeed in attacks despite all the efforts and obstinacy to penetrate the German front. On the other hand, this superiority could be expected to disappear in time by reason of the American entry into action and also, as will be shown later, by the lack of resources in men for replacements. It must also be pointed out that the German divisions were not of equal value. The German Headquarters had classified them into two categories. The first consisted of the better divisions, the so-called "attack" divisions, which were to be assigned to the Spring offensives. They included those which had taken part in the grand attacks of 1916 and 1917 and which were notable for their esprit and their successes. They were 56 in number. These divisions were withdrawn from the front at the beginning of January, 1918, in order to recomplete them in personnel and material, and to give them special training for the prospective offensives. The second category comprised all the other divisions of the Western Front, 136 in number. They were called "position" divisions because the command, by reason of the shortage in resources, had not been able to equip them for warfare of movement. In addition, the divisions of the second category were of unequal value; one group, although they had not participated in any large offensive operations, had given, nevertheless, proof of their high combat value in defensive operations and were consequently able to participate in grand attacks although they were not as good as the "attack" divisions; the remainder, consisting of *landwehr, ersatz* and recently formed reserve divisions, composed of aged soldiers, had never taken part in active operations either offensive or defensive; and they consequently could be employed only to hold the calm sectors.

It can then be said that of the 192 divisions which were, on March 15, 1918, on the Western Front, about one-third were very good divisions qualified for an offensive and for open warfare; and others, if the circumstances demanded that they be engaged in the battle, were far from being able to give the same service either by reason of the insufficiency of their training and equipment or on account of their intrinsic value. Taking into consideration all the above factors, it will be found that there existed practically no German numerical superiority.

Resources in Men

According to Ludendorff, the German High Command knew from the beginning of the planning for the offensives that the German Army would have to execute several large attacks which

would follow one another at large and irregular intervals. At the conference held at Hamburg on February 13, 1918, and presided over by the Emperor, he (Ludendorff) stated, "Do not count on an offensive such as that of Galicia or Italy. The fight will be formidable, commencing at one point and continuing in another. It will require a great deal of time and it will be hard." Von Hindenburg was also of the same opinion as he states in his book, "My Life"; "By surprise, if possible, to deliver a hard blow at the enemy, such was the objective towards which we would have to strive. If we did not succeed at the first blow to break completely the enemy's resistance, then we would have to strike other blows in other places until we would have attained our ends." Thus according to both Von Hindenburg and Ludendorff, the fight would have to be long and hard, and consequently the offensive would entail serious losses. It was necessary then to have in the depots resources in men sufficient to make good the losses of the divisions to be engaged in the initial attack so that the offensive could be continued in subsequent assaults. The greater were these resources in well instructed soldiers, the quicker the "attack" divisions could be recompleted and the quicker the successive attacks, which would have to constitute the offensive, would be able to follow one another. On the contrary, the fewer were these resources, the greater would be the difficulties for the "attack" divisions to refill their ranks, the quicker their attack value would decrease, and the more the attacks would lose their power. Now these resources which were at the disposal of the German High Command were very meager. For a long time the German Army had been passing through a crisis caused by the lack of effective strength of the units. The increase in the number of divisions and of artillery and special arms units, the operations of the Russian front, and the attacks of Verdun, the Somme, and Flanders, had used up its reserve. Moreover, the execution of the Hindenburg Program which prescribed the doubling of the production in trench mortars and munitions; and the tripling of the production of cannon and machine guns, had necessitated, during the autumn of 1916, the placing on leave status of a considerable number of soldiers who belonged to front-line units and who had to be replaced by the men in the depots and from the younger classes. All these reasons had required the German High Command to engage the Classes of 1915, 1916, and 1917 in advance of their normal time, so much so that the 1918 Class (which was composed of men 19 years of age) had to be incorporated into front-line units during the Summer of 1917; and in order to make good the losses of the autumn of 1917 (150,000 per month) the 1919 Class would have to be used during that autumn although Ludendorff believed that they were not yet capable of physically and morally supporting the severe test of the attacks on the Western Front.

This crisis in effectives was indeed serious. For many months the German High Command had sought to remedy it. Beginning in 1916, it had written several times on this subject to the Chancellor and to the Ministry of War and had urged in particular an increase in the total length of service or until 50 years of age. In 1917, it had been forced to take some rigorous measures. In May it had ordered the replacement in the services at the front of all men apt for combat duty by the men who were qualified only for garrison duty and had thereby obtained during the next three months about

1,200 officers and 84,000 men. In August, it prescribed that 10% of the men apt for combat duty be taken from the Line of Communications establishments but this measure produced only 6,000 men. A similar draft, made in August and September on the parks and convoys and on the special arms (aviation, signal communication, railway and automobile services), produced from the entire army only about 6,600. All of these drastic measures did not produce any appreciable number, less than 100,000, or the requirements for two-thirds of a month.

The real remedy for this shortage on the front of man-power was in diminishing the number granted leaves or delays for the benefit of the war industries. In the Summer of 1917, there were about 1,900,000 of this classification, of which more than one million were physically qualified for front-line combat duty. The German High Command took this situation into account when on September 10, 1917, it had invited the attention of the Chancellor to the gravity of the situation in the following manner: "The reenforcements for the army are at present insufficient. Instructed replacements are lacking in all arms and in unquieting proportions. The situation has already seriously handicapped our liberty of action. It is to be foreseen that next year the question will be still more serious if a large number of men on leave, or with granted delays, are not recovered. Not to succeed in procuring for the army the replacements of which it has need, would probably place in doubt the outcome of the war."

At this time the Ministry of War had evaluated as follows the requirements and resources for 1918:

Requirements: 160,000 per month, of which 60,000 will be obtained from the recovered wounded. Hence there would remain 100,000 to be obtained from other resources.

Resources: On January 1, 1918, there would be available in the replacement depots of the front and the interior about 200,000. By replacing in the "position" divisions the men apt for offensive combat service by the men apt only for garrison duty, there could be obtained 300,000. In controlling and recalling the men who were engaged in war production, about 200,000 could be obtained. These measures would give about 700,000 men, or the requirements until the end of July. At which time there would be no other expedient than recourse to the 1920 Class, consisting of young men of 18 years, which would give about 200,000 and which would meet the requirements for August and September. After that there would be no other sources and the final deficiency for the year would be 300,000 replacements. Recourse could not be made to the 1921 Class, which was too young, and to those remaining with the war industry. However to recall any more workmen, the production of the believed necessary supplies would have to be reduced, and according to the statements of Ludendorff the production was at that time already insufficient. It will be shown later that the production was, on the contrary, greatly in excess of the requirements of the army. In the opinion of the army authorities, however, the results of taking men from war production would then become a vicious circle; to increase the replacements would still more reduce the output of industry, to fail to increase the number of replacements would weaken the army at the front. In September, 1917, Ludendorff stated "not only would the reduction of war industry cost us much blood but it would compromise the outcome of the war as much as the absence of

the replacements. The solution is, however, so difficult that it will be necessary to proceed to the withdrawal of some workingmen with a view to making replacements of them with women." In order to remedy this situation, Ludendorff had proposed to the Chancellor a certain number of measures designed to permit the withdrawal of some workingmen and at the same time to maintain the production; but these proposed measures would have been able to produce only meager results. In the meantime, it was necessary, moreover, to make good the losses suffered in Flanders during the Autumn of 1917. Now there was available at that time only the 1919 Class, members of which were not considered sufficiently strong to withstand the rigors of warfare on the Western Front. In order not to engage this class in the West, Ludendorff proposed to send them to the Eastern Front and to have them replaced by the trained soldiers of that front. When he proposed this measure to the commander of the Eastern Front, the latter pointed out that there were a considerable number of men from Alsace and Lorraine who had been assigned to his armies because they couldn't be trusted to fight on the Western Front and that to send some 150,000 of the 1919 Class to his armies would place them in the condition where about one-half of the army would be unreliable and would have to be watched by the other half. At his request, Ludendorff assigned only 100.000 of the 1919 Class to the Eastern Front.

Such were the resources in men of the German army at the end of November, 1917, when the Russian breakdown took place. What modification was this breakdown going to bring to the resources in manpower available to the German High Command? First of all, it decreased the requirements of the Eastern Front, as there were planned no more costly operations on this front, and it was improbable that there would be any more in the future. However, the losses on that front during 1917 had been very small; hence the economies realized would be a minimum. The Russian breakdown did, however, permit, as we have seen, the transfer to the Western Front of a large number of divisions, but this measure did not produce any replacements. In fact, the replacements so transferred were a part of the divisional depots and were to be used to replace losses therein. Also, these depots had, to a great extent, been depleted by the transferring of the older trained soldiers and they had been recompleted to their allowed strength (600 per regimental depot), by the assignment of the men of the 1919 Class who had just arrived on the Eastern Front.

After these measures had been taken there remained in the Eastern armies only the small depots of the divisions remaining on that front. These depots could not further be reduced because the Russian situation had not been settled to the complete satisfaction of the German High Command and consequently it might be necessary to undertake some operation in order to produce the desired results. In addition it was to be expected that the losses of the divisions of this front would be augmented through increased disease during the approaching winter. On March 15, 1918, there remained in the depots on the Eastern Front only about 32,000 men. The situation on this front is shown by that of the 83d Division in January, 1918. In this division the infantry was short over 2,000 men and of the 7,000 infantry present more than 3,400 were over 35 years of age. In summing up it can be seen that the Eastern Front was able to pro-

duce only 100,000 instructed replacements for the Western Front.

Following the Russian armistice, December 17, 1917, the Ministry of War made a new evaluation of the resources that it would have available as replacements in 1918. In these calculations in which the monthly requirements were reduced to 150,000 by reason of the Russian breakdown, and in which the total number of available replacements was increased by augmenting the effective strength of the 1920 Class to 250,000, the conclusion was again reached that the shortage for 1918 would be 350,000, or the number which would be required for the last two months of the year. The only remaining source would be the boys of the 1921 Class. This evaluation, which confirmed that of September, 1917, proved conclusively that the necessary replacements for an offensive on the Western Front did not exist.

In the Spring of 1918, the situation as to men was very precarious. Ludendorff was aware of this because he has stated in his memoirs, "In March, 1918, the difficulties that we were experiencing from the standpoint of replacements, were not relieved, although some hundreds of thousands of men were at our disposal." However, Ludendorff did not hesitate to launch the series of offensives that he had acknowledged would be long and costly. In fact, of the men he had available, about 150,000 were in the depots of the Western Front and were consequently immediately available, and 100,000 were in the depots of the Interior and would be available within one month. With this small number of replacements—only those necessary to meet the requirements of normal warfare for less than one month, Ludendorff started a series of offensives that he knew would be hard and would require many weeks or even months to complete. When the seventy-five attacking divisions which were allocated to the St. Quentin assault had an average loss of 2,000 men, all of the resources in replacements which were available in less than one month, would be exhausted. The records of these assaulting divisions show that the predictable loss of 2,000 per division was to be expected and was exceeded in a number of instances. For example, a regiment of a supporting division which was not engaged until March 27th had within five days a loss of 800 men; a regiment of another supporting division which was also engaged on March 27th had a loss of 900; and the companies of an assaulting division which was relieved on March 26th were reduced to 50 men per company. Thus it will be seen that the predictable loss of 2,000 men per division was exceeded in a number of instances.

How then did Ludendorff expect to make good the losses which would have to be replaced in order to continue the progressive offensive action? Where would he find the replacements to supply the "attack" divisions if the enemy was not destroyed during the first assaults? As shown above these replacements did not exist and the subsequent events show that a new and serious crisis was soon on his hands. On April 11, only 20 days after the launching of the first offensive, "Michael," and two days after the beginning of the second offensive, "St. George," and before the losses incurred in this latter offensive could have been known at the German General Headquarters, we find that Ludendorff was appealing again to the Ministry of War for replacements that he knew did not exist. Within two months the situation had become so critical that the Interior depots were taken to task because it had been found that of more than 120,000 war-wounded

which had been evacuated to the rear since the start of the offensive, only 6,105 recovered-wounded, or less than 5%, had rejoined the front, whereas the expected recovery, which was based on the experience of the entire war, should have been more than 70%. Thus it can be said without fear of contradiction that Ludendorff did not have the replacements which would be required to carry out a difficult offensive and that he was fully aware of this serious deficiency throughout the entire period during which the proposals for the offensives had been discussed and planned.

Mobility of the Army

Although insufficiently supplied with replacements, the German Army was in 1918 even less well supplied with horses. On November 22, 1917, Ludendorff reported that this situation, which had been precarious during the summer of 1917, had continued to aggravate in that the losses had increased; the efforts demanded of the teams had increased; and their physical condition had continued to lower by reason of the shortage of forage. According to his statements, the monthly decrease in effectives was about 2% and consequently the monthly requirement was 15,000. The greater part of the divisions had only 80% of their authorized strength. The situation in the division and corps trains was even worse. At the beginning of 1918, the Western Front was short 43,000 animals of its requirement of 690,000 and the Eastern armies had also a shortage of 48,000. In the interior and in the occupied territories, the resources had been exhausted. The purchases from neutral countries were producing few horses.

However, for the grand projected offensive, in which a penetration and an exploitation would have to be obtained in order to gain a strategical victory, the "attack" divisions and the corps and army supply trains would have to be prepared for warfare of movement. In order to remedy this situation, the Ministry of War had decreased the authorized allowance of animals in the units of the interior, and Ludendorff had ordered the Eastern armies to send horses to the Western Front. In compliance with this latter order, the Eastern armies had transferred from November, 1917, to March, 1918, 14,500 horses, but it had been forced to render 13 divisions unprepared for open warfare. In this manner, Ludendorff was able to recomplete in horses approximately his 56 "attack" divisions. There were, however, a number of divisions used in the offensives which did not have a sufficient number of horses even to haul the light cannon assigned to them. We find that divisions which attacked in Flanders during April, 1918, had only a sufficient number of horses to haul at one time five-ninths of their light guns; and none for the heavier pieces or for the necessary ammunition trains.

The deficiency in horses was also aggravated by the shortage in forage. The hay, oats, and even the substitutes for them were supplied in insufficient quantities, and consequently the daily ration had to be reduced more and more. On January 16, 1918, Ludendorff wrote to the Ministry of War to invite attention to the difficult condition of the army and to deny his responsibility as to the shortage in equipment of the troops. On January 31, Prince Rupprecht reported that the capacity of the teams had decreased to an alarming degree; that certain units had not received any forage for weeks; and that it had been necessary to increase more and more the substitution of potatoes. In Feb-

ruary, both Groups of Armies commanders reported that the conditions of the horses of the "attack" divisions would not permit them to do hard work. On February 7, The General Headquarters telegraphed simultaneously to the Ministry of War and to the War Office Supply Section as follows: "It is necessary to act or the horses will die of hunger." On February 14, it telegraphed again to the Supply Section to report that the potential offensive strength of the army would be seriously handicapped by the poor condition of the horses. It was only on March 1, three weeks prior to the "Michael" attack, that Ludendorff was in position to give an increase in the forage ration to the animals of the "attack" divisions.

This difficult condition of the German Army had a great influence on the conduct of operations by the General Headquarters. With such a deficiency in horses, how could it expect to continue its offensive if the attack divisions had any considerable losses? This loss was as inevitable from the result of the enemy's fires as from the very considerable effort that the poorly nourished teams would have to put out during the course of an advance across shell-torn terrain and along muddy and destroyed roads. The area of the attack, practically astride the Somme River, is noted for its very deep mud. It contained also the area which had been fought over by the contending armies throughout the first three years of the war and had, as alleged by many, a resultant mud without bottom. How could the "position" divisions be recompleted in animals if it became necessary to use them in the offensive? This measure would have to be taken if the first assault did not succeed because the "attack" divisions alone could not carry out the system of offensives. Hence, on account of the shortage in replacements, as has been pointed out above, the only expedient at the disposal of General Headquarters would be to transfer horses from some divisions to recomplete others, but this measure would still further decrease the mobility of the army, and also the defensive and offensive value of a part of it. This is exactly the expedient which was adopted. On March 5, while engaged in the preparatory studies for the "St. George" attack, the VI Army commander reported that his "position" divisions which had been designated for the attack were incapable of taking part in the offensive on account of the poor condition of their animals, and that each had a deficiency of from 500 to 600. He reported that their artillery regiments were particularly in bad condition and that their infantry regiments did not have sufficient teams to pull their combat wagons and trench mortars. It was then necessary to draw on the divisions which would probably not be engaged in any of the offensives. The infantry was nevertheless forced to decrease the number of combat wagons and the artillery was even forced to organize special groups of teams in order to be able to advance the guns and ammunition during the course of the attacks.

It is true that the occupation of Ukrainia produced an important number of horses, but these animals arrived on the Western Front too late, in fact, only at the beginning of the summer of 1918, and then the German offensive had already been positively stopped.

This great shortage of animals caused the German General Headquarters to convert practically all of its cavalry units into dismounted troops. In fact, at the time in question there existed in the German armies, which contained about two hun-

dred and fifty infantry divisions, only three cavalry divisions, all of which were serving with the armies on the Eastern and Southeastern Fronts. Consequently, there did not exist on the Western Front any cavalry units with which any breakthrough might be exploited, and the rapidity with which the attacks could be conducted was thus seriously lessened.

The lack of mobility of the German Army was further augmented by the lack of trucks and tractors and the necessary gasoline for them. The insufficiency of rubber for the manufacture of tires and tubes did not permit the development of automotive transport to the same degree as had been done with other military equipment. The shortage of gasoline caused also a limitation in this development. The requirements for submarines and aviation were such that practically none remained for the land forces. The defensive combat in Flanders which had occupied the months of August-November, 1917, had exhausted all the gasoline supplies allocated to the land forces. Consequently, automotive transport could not be substituted for the insufficient animal-drawn transport.

The rhythm of the offensive as conceived by Ludendorff—successive attacks against different parts of the front and at varying intervals of time—was also considerably influenced by reason of this lack of mobility. The offensive of long duration had a chance to succeed only if the blows delivered succeeded one another without interruption or at very close intervals in order that the enemy would not be afforded the opportunity to reestablish his defenses.

Now setting aside all questions as to the shortage of replacements and artillery, we find that by reason of the lack of sufficient means of transport the different attacks could be executed only after a transfer from one army to another of the supply and ammunition trains which were required for the subsequent attacks. The succeeding offensives could be prepared only partially during the execution of a preceding one. They could not be launched immediately after the enemy had stopped the attack and hence the enemy could reorganize his forces and reestablish his reserves.

Armament, Munitions, and Material

As regards armament, munitions, and material, the German Army was, on the contrary, exceptionally well supplied in the Spring of 1918 and this satisfactory condition so remained until the date of the armistice.

The enormous requirements of the Hindenburg Program were fulfilled throughout the period in question. There was, in fact, always an excess production of powder. The excess production of artillery ammunition was so great that of the reserve of one million five hundred thousand tons which was available at the beginning of the "Michael" attack, less than one half had been consumed at the end of the battle in November, 1918, and this despite the fact that enormous quantities were captured by the Allies in their attacks during the summer and autumn of 1918. Although the monthly production of light artillery—77-mm. guns and 105-mm. howitzers — which had been fixed at 3,000, had been reduced to 1,100 in September 1917, and 725 in March, 1918, we find that the production for the period February-September 1918 was in excess of the prescribed amount by more than 9,000 pieces. So great was this excess production of cannon that the German High Command was able to establish a number of reserve artillery parks in the Interior. The park which was established at Cologne contained 6,000

pieces, which were turned over, never having fired a shot, to the Allies and by them "beaten into plowshares." The production of heavy artillery was likewise greatly in excess of the program requirements. The production of machine guns, which had been prescribed to be 7,000 per month, was practically double this requirement throughout the period.

On the contrary, the German Army was insufficiently supplied with tanks and airplanes. Ludendorff had foreseen since July, 1917, that the American entry into the war would still more increase the superiority in aviation that the Allies then possessed. In conjunction with the Inspector General of Aviation, he established a new program of manufacture and organization. This program, called "The American Program," prescribed that the monthly production be doubled, and that the number of units be considerably increased. For example, the combat, or pursuit, squadrons were to be increased from 40 to 80. Notwithstanding the very considerable effort made as regards the production of airplanes, the attacking armies could not be supplied in March, 1918 with all the aviation units of which they had need to assure the control of the air and to participate efficiently and continuously in the accomplishment of the plans of the German High Command. Although 28,000 men were assigned to the aviation during the autumn of 1917 and although the greatest facility was given to officers and men of the other arms to transfer to the aviation, there was not, in March, 1918, a sufficient number of pilots available to complete the personnel of the proposed new units. This deficiency in aviation in the German Armies of the West was a serious handicap and should have been a strong deterrent to Ludendorff in his proposal to end the war by a German victory on the Western Front.

As regards the tanks, the situation was a great deal more critical. If Ludendorff foresaw the importance that aviation would take during the course of 1918, he apparently did not conceive the very important role that tanks would have in future attacks; nor the service that they would have been able to render to the German armies in their attacks of 1918. The importance, in the opinion of Ludendorff, of the increased production of airplanes, munitions, machine guns and cannons, has been shown; and it is astonishing to find the contrary as regards the production of tanks. Almost from the date of their introduction into the World War it is found that Ludendorff was impressed by their adaptability to the conduct of battle under the conditions existing on the Western Front. Following the first use of them by the British in their Somme attacks of 1916, we find that Ludendorff made on October 11, 1916, the following report to the Ministry of War: "Without overestimating the tanks, it cannot be denied that they have obtained positive results. In any case, an improved tank will be a means of efficacious combat. Consequently, I am of the opinion that the Ministry should undertake the production of some tanks and when a serviceable model will have been developed, production in quantity should be started." On November 13, 1916, the War Ministry ordered the development of a tank model.

However, in 1917 a change in the opinion of the German High Command, regarding the value of tanks as a combat weapon, took place. The model of a tank which had been developed was demonstrated to the German High Command in May, 1917, and its performance was considered to have been unsatisfactory. According-

ly, only 100 of this model were manufactured, and of these 80 were to be used simply as tractors and only 20 as fighting tanks.

In December, 1917, the Chief of the Automobile Service proposed the construction of some light tanks, the delivery of which would commence in 1918. The German High Command rejected the proposal on the grounds that the armor of the proposed tank was considered to be insufficient.

At the time of the launching of the "Michael" attack, the German Army had only 15 tanks. Later in the Spring, 75 British tanks which had been captured at Cambrai, and repaired by the Germans, were allotted to the armies on the Western Front.

This lack of tanks in the equipment of the German armies was the source of great weakness. In his "Memoirs," Ludendorff has endeavored to remove the blame which justly remains on his shoulders by stating that the British tanks in the Cambrai attack had been employed against a weakly held part of the front which was scantily provided with artillery and which was manned by aged soldiers; that moreover they were only an attack weapon and that the German attacks had succeeded even without them; that they could not have been produced on account of the shortage in workingmen and for the 1918 offensives the mass of tanks which is the only efficacious method of employing them.

All of these reasons, which have been given as afterthoughts, have very little value; in particular, the one which alleged the inability of German war industry to produce them—because, as we have seen, in October, 1916, and after the establishment of the Hindenburg Program, Ludendorff was of the opinion that it was possible to produce them in quantity. The excess capacity which was producing powder, cannon, machine guns, and airplanes which could not be used, could certainly have been employed to produce a real necessity, the light and heavy tanks.

In October, 1918, Ludendorff gave quite different reasons when he replied to the request of the Minister of War for information. The request was stated as follows: "In order to enable me to reply to a question of the Reichstag, my Department desires to know why in 1917 and at the beginning of 1918, so few tanks have been ordered and constructed." General Ludendorff's reply was: "The General Headquarters recognized in time the importance of tanks and commenced their construction. The trials have required, however, a long period of time. In addition, the war industry, occupied to its capacity with the Hindenburg Program, had not been able to undertake the erection of plants to manufacture the trucks which were vitally needed for the conduct of open warfare operations. It has been necessary to choose between trucks and tanks, and the question has been decided in favor of the trucks. It was only when necessary raw materials for the construction of tanks could have been obtained but then neither the plants or the workingmen were available. The production in quantity has not been possible prior to the summer of 1918." These reasons have scarcely any more value than the preceding ones as it is not difficult to show. This fact is supported by the statements of General von Kuhl, the value of whose opinion must be placed very high. He stated in his evidence before a Reichstag Commission which was investigating the causes of the German defeat: "It can be said that at the beginning the importance of tanks had not been sufficiently recognized by the General Headquarters. When their

fabrication was started, it was neither organized nor pushed sufficiently in order that a large number might have been completed in 1918. Industry would have been able to supply a large number. Summing up, with foresight and firm willpower, one would have been able to accomplish more without however being able to regain the advance in this matter of our adversaries or to have produced serviceable tanks prior to 1918."

It was not a question of the German High Command being able to overcome the advantageous position of the Allies as regards tanks but simply to have some tanks for the grand attacks of 1918. This was of course possible as has been shown by the condition of the German war industry. Without being supported by tanks, the German armies were able to reach the outskirts of Amiens; with tanks they would probably have pierced the thin curtain of troops which existed on March 25th between the main French and British armies. In any case, the General Headquarters would have been able to economize in artillery in the preparation for the assaults and it would have been able consequently to extend towards the north its initial attack. This part of the initial assault had been abandoned against the wishes of Ludendorff because he was short in the necessary artillery to prepare the attacks and because the terrain in the valley of the Scarpe was, in the early Spring, unsuitable for military operations without the assistance of combat vehicles capable of crossing the wet and swampy ground which marks that valley at that time of the year. From the first days of the "Michael" offensive, it would have been possible also to facilitate with tanks the advance of the XVII Army which had been stopped by the British on their second battle position in front of and south of Arras. It would have been able moreover to have executed some demonstrations against some other parts of the front and to fix really the French reserves. This latter important measure the German High Command claimed that it had not been able to accomplish. In fact, it did not make any attempt to fix in place the French reserves. Finally, its attacks would have succeeded one another at closer intervals and the tanks would have been able to supply in part the deficiency in men which so handicapped the German operations. Hence it may be safely stated that the failure of Ludendorff to develop and produce a serviceable tank with which to support his infantry in the endeavor to effect a penetration was another serious defect in the plans of that supposedly great commander.

When an examination is made of all the above facts, it is apparent to all that Ludendorff, the de facto military "Führer" of the German Empire during the last two years of the World War, failed in his obligation to his government and to his people when he attempted offensive military operations much beyond the capacity of the means which were available to him. Any unbiased analyzations of the military factors existing at the time in question shows that the shortage of the German Army in replacements, in horses, and in tanks, absolutely denied to the German High Command the right to launch in 1918 any large attacks against the Allies on the Western Front.

Another Odd Number

BY PETER B. KYNE

IF YOU have read an article by me, entitled "Short Order," in a recent issue of THE FIELD ARTILLERY JOURNAL, you will have become acquainted with the hero of this present tale — Corporal - Cook Andy Bogue (which isn't quite his true name) who soldiered with me in L company of the 14th Infantry back in the days of the Empire. In the story Short Order I stated that Andy was the exceptional man, the lad you never could figure on—and this tale is merely additional evidence in support of that statement.

After the battle of Zapote river Company L moved up into a field that formed a delta between Zapote river and a minor stream called San Nicholas. The rainy season was coming on and the campaign temporarily had been halted; so we got our tentage out from the Cuartel de Malate and went into camp until it should be time to start another advance. The remainder of the regiment was at Bacoor and Imus. There were probably two thousand of the enemy within long-range rifle shot of us, but after the mauling we had given Pio Del Pilar's troops at Zapote river the survivors were as content as ourselves to sit down and rest a while. . . . About forty per cent of my company was in hospital for various reasons, mostly intestinal, so we were glad to take it easy, too.

Here our music suddenly decided to get dysentery simultaneously. I had been fooling around with the trumpet and had acquired a lip, so I was handed the instrument and given four days in which to develop into an adequate bugler. I know I made good because nineteen years later when I was a captain of field artillery, my music so disgusted me that I shamed them all one day by showing them how a call should be blown—and that on a short artillery trumpet. I was happy to be a trumpeter because the music didn't have to do outpost duty. I was quickly disillusioned, however. Our personnel had been so depleted that music was simply extra duty and gave me a Colt's .38 and the bugle to look after in addition to my equipment as a private.

Now, about this time there appeared on the Calle Real (which is the old military highway running around the bay from Manila to Cavite) a red-headed, red-bearded major. He was from the quartermaster's department and had to do with construction, I imagine, for he had fifty Chinese coolies with him and a raft of road-building tools, and he at once set to work to restore the Calle Real, now unfit to carry transport because of four years of war, floods, and neglect. Latrine rumor had it that three miles of the Calle Real, from Zapote river to the Imus river, had to be readied up for transport before we could continue the campaign southward.

The unfortunate major was too busy to boss that job of road-building himself, because he had to be in a dozen places at once. So promptly he borrowed a soldier from our company commander, instructed the soldier how he wanted the road crowned and the basalt blocks tamped into place with sand and gravel and a sort of gutter made on each side of the road-bed. When he'd call around a day or two later to see how the job was progressing he'd find about fifty yards of road-bed indifferently rebuilt; whereupon

he'd relieve the soldier and borrow another, hoping always to find one he could trust. But the job did not get forward and the wretched major was nearly nuts because he HAD to get that job done before Major General Henry Lawton came down our way to start something lively. And you never could figure on Lawton. Out of nowhere he would appear and five minutes later hell would start popping.

Now, the major had a gravel pit down on the edge of Bacoor Bay and

"IS THAT ALL YOU HAVE TO DO?"

a string of caribao carts hauled this gravel over to the Calle Real. One morning I was sitting on top of the gravel dump trying to sound tattoo without letting my lip slip, when the major appeared on the job. I tootled right on and suddenly he howled: "Son, is that all you have to do? Tootle that infernal bugle? You're driving me crazy."

"Sir," I replied respectfully, "this is all I have to do and I have to keep on doing it, because I've been given four days in which to learn more than a hundred calls and tomorrow morning I have to blow reveille. But I'll not practice here if it annoys the major."

He simmered down and regarded me soberly. For a week he had been seeking an efficient soldier to boss his job and had failed miserably. And now here was a mere boy cheerfully resolved to become an acceptable bugler in four days. "You going to make the grade?" he queried.

"Yes, sir," I replied. "Reveille and tattoo are tough but I'll have them licked by sundown. I have to."

He sat down on the gravel pile and loaded his pipe. "I'm going crazy," he announced.

"But I'm not driving the major crazy," I defended. "The major, to my certain knowledge, has been going crazy for two weeks trying to get that road built. No can do."

"Do you know why?"

"Yes, sir. All of your coolies, or at least a distressing majority of them, are opium eaters, and when the soldier bossing the job turns his back they drop their tools and sneak into the bush, lie down, swallow a pill of opium and rest all day. If the soldier goes hunting for one all the others will be gone when he returns, and he doesn't know how to make them work. Hence, you can not get forward with the job."

I think this was news to him, but then a curious eighteen-year-boy private will often discover things invisible to G-2 and I was a restless, inquisitive young devil. I got around a lot and asked questions, and I *was* curious about that road because the first money I had ever earned had been in my fifteenth year when for two weeks I did pick and shovel work on the county road back home and learned how to do this very job the major was now unable to do. Two dollars a day, too.

Said the major presently: "Son, did it ever occur to you how coolies should be driven?"

I said it had. Even if it hadn't I would not have been so low as to admit that to the major. I felt sorry for him and as I am naturally kind-hearted I yearned to comfort the man. So I added: "What you need in command of that job, sir, is a reincarnation of the late Mr. Simon Legree."

The major got up and dusted the seat of his trousers. "Come with me, Mr. Legree," he ordered, and brought me before my company commander. "I want this boy for my straw boss," he announced. But my officer said that was impossible; that I was his only music. "Give him a list of the calls and a watch," said the major. "He can blow calls just as well three hundred yards from here as he can in the company street. In fact, you can hear him a mile away."

So I was sold down the Calle Real. I informed the major, however, that I could not report for work and guarantee efficiency, until the following morning, because I had to make certain preparations. So I had my way. My first move was to go out into the jungle and cut a young bamboo about an inch and a quarter thick at the butt and five feet long. The end I slit into a cat-o-nine-tails effect; the butt I bound with caribao hide strips for a grip with a loop for my wrist. I then went down into the kitchen and Andy Bogue gave me cardboard from empty cartons and a little empty pepper can. I drew circles on the cardboard, using the pepper can to make them accurate; then cut these circles out. When I had fifty I numbered them one to fifty. These were my time checks.

The following morning I took command of the coolie gang in their camp before marching them to work. I lined them up, company front and asked, in Spanish, if one of their number spoke Spanish. I imagine they all did but only one had the enterprise to say so. He raised his arm and waved it at me and said: "Si, Senor, Soldado." I called him out and looked him over. His coloring interested me. It was a reddish brown and his nose was acquiline. He was six feet tall, beautifully made, powerfully muscled, and he had a faint gleam of human intelligence in his brown eyes. Manchu blood in him, I decided. He was naked save for a dirty loin cloth.

I spoke better than bamboo Spanish, because the Mexican patois was the mother tongue in the part of California where I had been raised. So I said to this big coolie: "Your name is Jim. Say 'Jim'." He said it and nodded. "Jim, you will not have to work. You are my assistant manager. Your duty will be to aid me to make the others work. I will stand on one side of the road and watch and you will stand on the other and watch. If you see one of these Chinos sneaking into the bush call me. You will then get him and bring him to me and hold him while I beat him. Understood?"

Jim nodded and somehow his nod indicated, not only understanding, but willingness. "You will not be paid any more, Jim, but you shall have the same food as the soldiers." Jim smiled, for this was big stuff. "Now, here," I continued, producing my time checks, "are numbered papers which I will issue, one to each man. Every hour as we work I will have you collect these papers. If there is a number missing the man who has that number will be beaten when he returns and he shall have no food that night. If I see a man leaving work without my permission I shall do my best to shoot him. Explain this in Chinese to these men and tell them that from today on they will have to do some work for

the twenty-five centavos American money the army pays them. Tell them I shall have no mercy."

So Jim made oration to the gang and they did right shoulder arms with their tools and we were off to the job. In addition to the Colt's .38 I carried a Smith & Wesson .38, both with six-inch barrels. This latter was my personal property. And I had my gad and Jim was armed with a pick-handle. I warned him as we trudged along that he might have to use it and if he did he was not to hesitate. He was not, however, to do any head-cracking but to deliver his blow on the shoulder close to the neck. Jim just kept on saying: "Si, Senor Soldado, si." I could see he was very proud to be a straw boss and I thought: "This fellow will be good, for, as some philosopher once remarked, when the slave becomes a master, he, too, becomes a tyrant!"

With Jim as my left eye, my right hand, and my interpreter, the dirt began to fly. About half an hour later far up at the head of the gang, I saw a coolie drop his tamping iron and start for the bush. Instantly I pulled and took a quick shot at him. I tried for his legs but only succeeded in kicking up the dirt at his feet, which gave him pause. All the gang looked up at sound of the shot. "Go get him, Jim," I ordered, and Jim secured the man and dragged him down to me by his queue. Then he held the man while I raised blood-blisters on the wretch's naked back. Six furious blows and a promise of double the order if he again offended. I looked at his time check, marked him down, and booted him back on the job.

The incident was repeated three times that morning and Jim reported to me that there was much anger and grumbling and a couple of hot-heads were trying to foment a revolution in which Jim and I were to be killed. So I flogged the ring-leaders and Jim preached to them on the error of their ways.

Just before noon Jim let out a yell—and here they came, brandishing picks and crow-bars and tamping irons and shovels. I had taken the precaution to be standing back about twenty yards so I would have fighting room in case of a rush. And, thanks to Jim, I had had time to make a battle plan and tell Jim what to do. All Jim had said was: "Si, Senor Soldado."

I figured Jim and I were cold meat if I hesitated, so I didn't hesitate. I pulled my Colt's and commenced firing over their heads and into the ground, while Jim and I charged them! This unexpected development gave them pause and the front rank tried to get away. And then Jim and I were into them, my flail going and Jim's pick handle coming down on shoulders. The attack broke down and raised blood-blisters on the backs of all those I had recognized in the forefront of the assault.

My recollection is that Jim and I had to repulse three charges before that gang decided it was bad luck to monkey with us. And there were no more desertions, but a dozen men on sick report. However, the work went forward rapidly and the Major, after making a few inspections, was very happy and left me alone. About the time I was too far away from our camp to bugle successfully one of the buglers returned from hospital and in three weeks I had the worst of the job done and the last mile was just filling in low spots, graveling, and cutting away the encroaching jungle. The major was so grateful he declared he was going to have me transferred to his command and make me a construction sergeant, but at that I howled. I was willing to help him out in a pinch, but I still wanted to be a combat soldier, not a

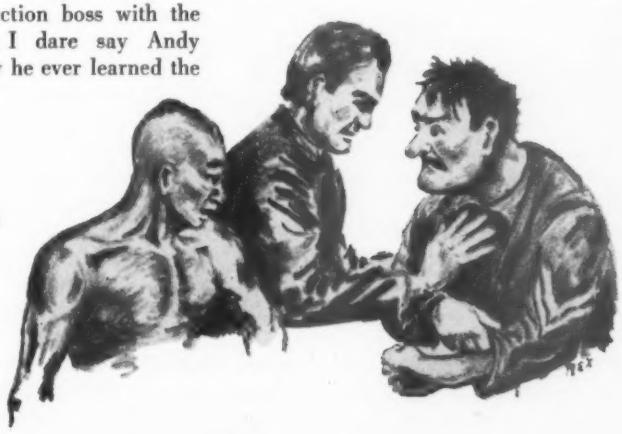
road-builder, and please, would he get that fatal notion out of his head? He was a good fellow and abandoned me with a sigh.

However, when I quit, Jim had to quit, too, else two minutes after my back had been turned Jim would have been a corpse. So I took him home with me and traded the major one of our perfectly worthless coolie kitchen police for him. We had six or eight of these, it having been considered wise when disease and casualties cut down our forces, to use coolies for K. P.'s and reserve the soldiers for soldier work.

These coolie K. P.'s were the bane of Andy Bogue's life. They never did anything right, they fled to eat opium the instant he turned his back, and he couldn't trust one of them to keep a paddle working in the rice or the stew so it wouldn't burn and freeze to the bottom of the boiler. Being a short-tempered man he cuffed them frequently and, since he was congenitally unable to learn even the simplest bamboo Spanish, conversation between Bogue and his coolies was confined solely to: "Drag your dead tail to hell out of here and get me a bucket of water, you Chino so-and-so. Pronto, pronto! Mucho pronto!"

Like the Irish section boss with the Mexican laborers, I dare say Andy often cursed the day he ever learned the language! Knowing the Gethsemane in which he dwelt I brought Jim to him "Andy," I said, "you can let all your coolies go to the road gang. I'll tell the major. This is my late foreman, Jim, and Jim is a pearl of great price. He is industrious, intelligent and obedient. He is brave and will fight. He is loyal as they come. He is the Prince of Kitchen Police and I give him to you with my compliments—on one condition. He must be permitted to sleep in the tent with the kitchen supplies, next to you and you must keep an eye on him, because the other coolies are apt to kill him while he sleeps. Treat him kindly, Andy, and feed him heavy. He's a big man and needs lots of fodder."

Andy was pleased. Nobody ever did anything nice for him. I explained to Jim just what would be expected of him and warned him that the cook was a hard man but very fair and just; if Jim did his job well there would be nothing to worry about. Jim gave me his lost-dog smile and said: "Si, Senor Soldado," and Andy gave him a big wooden paddle and I told him he was to stir the slum continuously while it bubbled over an open fire, else it would burn and riot among the soldiery would



"I GOTTA TEACH HIM RESPECT FOR MY STRIPES"

result. Thereupon Andy and I sat down to smoke and have a chin-chin.

Suddenly there rose on the humid tropic air the unmistakable odor of burning slum. Jim, his attention attracted by something going on in the coolie camp, had paused in his paddling for perhaps a minute—and the horrid deed was done. "You red so-and-so," Andy howled. "I'll learn you to burn my slum." And he rushed at Jim, lifted one from the hip that connected with Jim's jaw, and sat Jim down on his haunches. He went over on his naked back, with his tremendous legs waving ridiculously and, as I recall it, took a count of three. Then he bounded to his feet, flew at Andy and swung a round-house punch that landed flush on Andy's blue prognathous jaw and Andy went out—cold as a banker's heart.

For an instant Jim stared at the havoc he had wrought, then with a wild screech of grief and lamentation he started running for the jungle. He had struck and injured a white man and, of course he knew that only his death could assuage the cook's ruined honor. I took after him, shouting for him to stop, that it was all right, that he would not be punished, that I would protect him, but Jim kept on at a rate that would have had him down in Batangas province by sun-down, if, in his blind fear, he had not come out on the bank of the San Nicholas river, with the tide up from the bay and the river not fordable. And Jim could not swim. So I caught him and in great fear and trembling and weeping like a lubberly boy he consented to return with me to the scene of his crime.

About a minute after our return Andy began to bat his eyes and sigh; presently he got on his hands and knees and then sat down on his hunkers and gazed about him. "What happened?" he croaked.

"You hit my Jim and knocked him down and he came back and socked you for a parade rest. I told you this coolie was superior goods and to treat him kindly."

Andy shook his addled head. "He's GOOD," he ground out. "By Jupiter, he's good. It takes a good man to tuck me away like that. Whew-w-w! Cripes, that slum's ruined an' I'll have to boil some rice."

In about ten minutes Andy stood up, hitched his trousers and said: "Pete, this Chino may be a friend of yours an' he may be a pearl o' great price, as you say, but it ain't in the book that he can hit a white man an' get away with it. I ain't mad an' I ain't goin' to lay him up, but I got to teach him respect for my chevrons an' my race."

Realizing that I was up against an immutable law, I made no protest and Andy dug into poor bewildered Jim like a terrier attacking a mastiff. Jim was too frightened to resist him, so Andy flopped him, climbed him, and cuffed his jowls with horny open palms until I called a halt. Jim wept. He lay with his poor lost-dog face in the dirt and would not be comforted. Andy stood gazing down at him. "Cripes," he said, "he's human after all. Why, I cry myself when I'm mad an' desperate an' there ain't nothing I can do about it. The poor red devil, maybe I been too hard on him."

And thereupon Andy went into the cook tent and reappeared presently with a freshly opened can of apricots and a large spoon. He lifted the broken-hearted Jim up and set the tin of apricots in the coolie's trembling hands. "You ketchee," he urged. "Apricot heap good, Jim, you danged old walloper. You heap much bueno boy. Heap fine combatti!"

I explained to Jim that this was the cook's manner of demonstrating that all that had happened had been in

good clean fun, that he bore no resentment, that, in fact, Jim had risen immeasurably in his estimation by virtue of his prowess, that the cook would never strike him again, that punishment had been inflicted and all was over. So Jim took a sip of the juice and grinned. Andy rumpled his shaven head and Jim looked up at Andy with a pretty close imitation of downright affection. Then he bit into a piece of apricot—and wilderness were Paradise enow!

Still wrapped in the thrall of his terrific pride in Jim, Andy dug up a discarded campaign hat and crowned the slave with it. Again he drew the pathetic smile. Then, still feeling himself somewhat of a dog, Andy gave Jim a bag of Bull Durham, a packet of brown paper, and an old pocket knife.

"The new master," said Jim to me, "is a worthy man. I am his slave. I have not known white men like him but then it is well known that white soldiers are different from other white men."

And Jim was Andy's slave thereafter. He would build a little smudge to drive away the mosquitoes before they could invade Andy's tent o' nights. Andy had an alarm clock (purchased, of course, out of his meager pay) and he would set this alarm clock to rouse Jim up at four AM. At the first preliminary growl of it, Jim would be awake and have it smothered, for his beloved master must not have his sleep broken by the ringing of the devilish contraption. And Jim would have the rice boiled and the coffee made and the bread sliced, or the bacon fried before Andy would appear to answer mess call. That was the life!

Suddenly one night in the middle of the rainy season, the San Nicholas creek overflowed its bank and our camp was soon under six inches of water.

"I . . . CAUGHT THE WIRE"

The ground just wouldn't hold another drop of moisture and the river continued to rise and pretty soon we had to get out of there or drown. So, in the midst of thunder and lightning and rain we put our hands on each other's shoulders, in order to keep contact, and made our way over to the big high-arched masonry bridge that spanned the San Nicholas on the Calle Real. But the river was running neck deep on the approach to the bridge, so we joined hands and the Big Fours pushed out into the yellow flood; they made the quiet water closer in and hauled their next rank man across. Several times the current broke the line. I got swept away but remembered having seen the Signal Corps stretch a telegraph wire between trees below the bridge, so I fanned around and caught this wire, dragged myself across the main river to the still water on the other shore and then made my way up on the bridge. I stood there with Andy Bogue, watching, between the vivid flashes of sheet lightning, the line still crossing from the other side.

Suddenly there was a scream—and we knew somebody had been plucked out of the line by the current and was on his way down river to Fiddlers Green. Then the lightning played over the scene and we saw the white frightened face of our faithful Jim on the surface of the yellow flood. "Great grief," shouted Andy, "there goes my Chino." He dropped his rifle, shed his belt and haversack and canteen in three seconds and dove over the parapet of that bridge into the whirling waters below. And that, we thought, was the last of Andy Bogue and his Jim Chinaman, for the next flash of lightning showed no heads on the surface.

"Well," said old Dad Keyes, the first sergeant, "there goes the best cook we ever had. And serves him right, too. Imagine a man so dumb he has to go to work and die trying to save a coolie."

Suddenly, above the tumult of the typhoon and during a momentary lull in the wind, I thought I heard a shrill yip from down stream. We listened. Then several others heard it and we noted that the sound remained stationary. "The fool managed to catch hold of a limb of a tree that used to stand on the bank," Dad Keyes decided, "so now he's holding on and howling for us to save him."

We buckled and tied all the canteen straps and haversack straps into a long line. Then somebody went across the bridge and in the calmer water on that side fought his way to the jungle wall and with a bolo cut down a bamboo and came back with a five-foot section of it. To this we tied the line and floated it down stream, meanwhile having one leather-lunged private howl to Andy to watch for the timber. We dragged it backward and forward across the main channel, letting it out slowly . . . Suddenly we felt a faint jerk, another and another, and half a dozen more. That meant Andy had connected. So we waited and presently we felt three hearty and distinct jerks, which means, in any language, and particularly sailor language (for prior to his enlistment Andy had been second mate on a whaler) "Haul away."

Good lord, how we hauled away! We dragged Andy into the calm water on the farther side of the bridge and stooped to pick him up, but he said thickly: "Take the Chino. I think maybe he's dead." And when the lightning flared we saw that the line was tied around Jim's body beneath his arms. Andy had held on with his left hand and with his right arm had tried to hold Jim's head above water, but as a matter of fact they had both been hauled up so fast they had made the journey under water! Andy had managed to get a few breaths but Jim, who had been half drowned before Andy caught him, had made the journey in total submergence.

We snaked the unconscious Jim up on the bridge and Andy emptied him. I pulled his tongue out and turned his head to one side and we started to work on him. Half a dozen times we wanted to give up. Poor Jim was dead. Of course he was. But Andy profanely shouted that he wasn't. A man was never dead while he was reasonably warm and limber and in two hours rigor mortis had not started to set in. So we flew at Jim again and about dawn he wiggled a little. Andy let out a glad whoop. Presently Jim pulled in his tongue and Andy whooped again. Then Jim opened his eyes and sighed deeply and Andy rolled him over and howled: "Hye, Jim, you blasted fool, look at me! Know me, Jim? I'm your boss. You're all right, Jim," and he commenced slapping and rubbing Jim's naked body to bring back the circulation.

Not until Jim sat up did Andy, like

a prize fighter retiring to a neutral corner after knocking his opponent down, retire to the other side of the bridge, where he stood leaning against the parapet. Jim watched him; presently he slid forward on hands and knees and thus crawled across the bridge to his beloved master. "Stay where you are, you moon-faced aborigine," Andy commanded, but Jim came crawling on until he was kneeling at Andy's feet. Then his great arms came up and encircled Andy's legs; his weary head bent forward and he laid his cheek against Andy's thigh in a gesture of love and fealty that brought a lump into the throats of all present.

Andy was frightfully embarrassed because it hadn't occurred to him that he had done anything remotely remarkable. He was merely practical, as he was careful thereafter to explain. He possessed the Prince of Kitchen Police. Ergo, he could not afford to lose him. Very simple!

I have often thought that Jim must have had feelings, just like human beings, because he was weeping silently and burrowing his cheek against Andy's thigh and holding his master tight, as if he would never, never let him go. I said to Andy.

"Andy, the Chinese believe that to him who saves a life that life, thereafter, belongs."

"I'd take him back home with me if I could," said Andy, and then, to hide his embarrassment, he grasped Jim by the queue and lifted the coolie's head. "Damn you, Jim," he growled, "I'll learn you to get swept away in a flood again," and he cuffed Jim severely.

Warriors have knelt at the feet of kings to receive the accolade of the sword and be dubbed knights. Jim knelt at the feet of our company cook to receive the accolade of a hard palm and be dubbed a stupid Chino this and that. But he took it without flinching and when at length Andy let go his queue, Jim again pressed his face against the master's thigh and held on. Poor devil! In all his life of suffering and labor on half rations Andy was the first man he had ever found to cling to, the first human being to alibi the dreadful world in which the coolie had his being. His eyes were closed and yet he seemed to know exaltation, for when I said to him:

"The master is not angry, Jim. It is his way of proving that he is not the soft man he is. Had you died he would have grieved."

Jim nodded. "Si, Senor Soldado, si. Yo comprende."

"Any o' you bums got some coneyac in your canteen?" Andy's sour glance swept the dripping company. "I want a swig to warm up my Chino."

Somebody had some and broke it out. Andy poured a double ration into his tin cup and proffered it to Jim, who opened his eyes as the aroma of the hard liquor seeped into his nose, under which Andy was holding the cup and profanely ordering him to drink. Jim sniffed and said to me, "Senor Soldado, be kind enough to say to my master that I do not need this, but he does, for he is cold and weary and I have made him so." And he took the cup and held it up to Andy, who thought he understood.

"Well," he declared, "rank has its privileges, an' I'm glad this Chino is learnin' some discipline at last." He drank two big gulps, shivered and pressed the cup back on Jim who crawled away a foot, bent and touched his forehead to Andy's government brogans. Then he straightened up. "Senor Cocinero," he said, "salud y muchos pesetas." (Mr. Cook, health and plenty of money.) He poured a few drops out on the bridge to appease the personal devil that had drawn him into the riv-

er, and tossed down the rest. "*Bueno,*" he murmured and went down to the water that lapped the apron of the bridge and with gravel scoured the cup, that the defilement of his lips might not affront his god.

Andy watched him. "D'ye know, fellers," he announced, "I got a notion that Chino's a ketch-colt? He's got a nose on him like the American eagle. Yes, sir-ee! Strain o' thoroughbred in that Chino. Pete, you *hablar* to Jim an' tell him I won't never hit him again."

This information I conveyed to Jim when he returned with the tin cup. He smiled the wistful smile of a friendly lost dog. "*Es nada, Senor Soldado,*" he murmured, "*es nada.*" He handed the cup to Andy. "*Gracias, jefe mio.*"

"What's the beggar sayin', Pete?" Andy demanded.

I rendered a liberal translation. "Jim says you can hit him all you want if it pleases you. You don't pack much of a wallop anyhow. And he thanks you for the drink and calls you chief."

"He's somethin' of a kidder himself, ain't he?" Andy marveled.

"If Jim was my Chino," I suggested, "I'd give him every Thursday afternoon off. All good servants get Thursday afternoon off."

"There's an idea. Pete, you tell him." So I told Jim, who smiled his wistful smile and murmured. "*Gracias, jefe mio. Mille gracias.*" Then he picked up Andy's belt and buckled it around him. He draped Andy's canteen and haversack over his naked person; he picked up Andy's Krag and came to a right shoulder arms, for old Dad Keyes, the first sergeant, had noticed, with the dawn, that the river was receding and we only had to march a mile and a half to Bacoor and hope C Company would give us breakfast. The water would be up to our waists all the way and Jim knew how hard the going would be for his master. As for himself—well, the going had always been hard for him, so he didn't mind. And he was a coolie and accustomed to carrying great burdens . . . presently he raised softly a crooning chant in Chinese . . . the sorrowful chant peculiar to coolies. My late Chinese friend, Mr. P. How, who used to have a tailor shop in the North Szechuan Road in Shanghai, told me once that coolies sing like that to forget that they are hungry and hopeless and weary and nobody cares.

Quien sabe?

The E-110 Adapter

BY 2D LIEUT. HERMANN O. SCHMIDT, 110TH FA

An Adaptation of the Trainer Battery for Use with the 75-mm. Gun

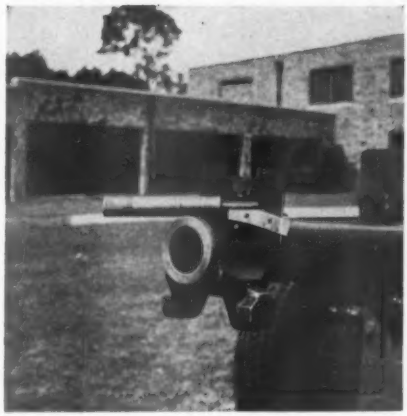


FIGURE 1

THE matter of effecting efficient training for gun crews and at the same time having this training really interesting over any appreciable length of time has always been somewhat of a problem. No matter how varied a training course or system, after a period we are faced with monotony. We itch to see concrete, visible results of what we are doing. This is not an attribute peculiar to gun crews alone; but is noticeable as well in training in conduct of fire. We are thinking, of course, of the armory drill training periods where, perforce, time, space, and funds are distinctly limited. So that we felt that if these periods could be made more realistic, could be made to approach more nearly field training conditions—where tangible results are encountered—we would be in position to afford not only efficient training, but one markedly interesting.

The advent of the Field Artillery Trainer Battery, *circa* 1933, seemed at first-hand to offer a solution to our problem. Yet, some disadvantages of the Trainer became only too soon apparent. For one thing, gun crews could not be trained as units; for another, the slowness of the traversing mechanism virtually eliminated speed —shifts of any size required too much time to be made, and training in direct laying, especially with mobile targets, was definitely impracticable. Yet, the potentialities of the Trainer remained intriguing. The question that we asked ourselves was: "If the Trainer could be rigged up in some manner to the 75-mm. gun, wouldn't we have an interesting, economical, somewhat realistic, and reasonably accurate device for training gun squads in servicing the piece, and a device which would serve in training in con-

FIGURE 2

duct of fire?" After some experimentation, we produced late last spring the "E-110 Adapter" (E for Battery "E," and 110 for the Regiment), which, it appears, will answer our question.

The Adapter is rather a simple device. It consists of two blocks of wood, approximately 6"x4"x3", hollowed in their centers to receive the tube of the Trainer, both blocks being clamped together by four ¼" bolts, countersunk or set flush. One of the blocks is grooved so as to permit the assembly to rest against the underside of the 75-mm. tube at the muzzle end. Two straps (ordinary issue waist, belt, web, will do) hold the Adapter securely in place; although, when new and properly constructed the Adapter fits snugly enough so that the straps serve no real purpose at this time. The complete assembly can be inserted into position in a few seconds. The cost of construction will depend, of course, upon the wood used and the quality of labor employed, but if made by civilians, should scarcely exceed three dollars. Figure 1 shows the adapter unmounted and disassembled. Figures 2 and 3 show it mounted. Figure 5 gives the construction details.

FIGURE 3

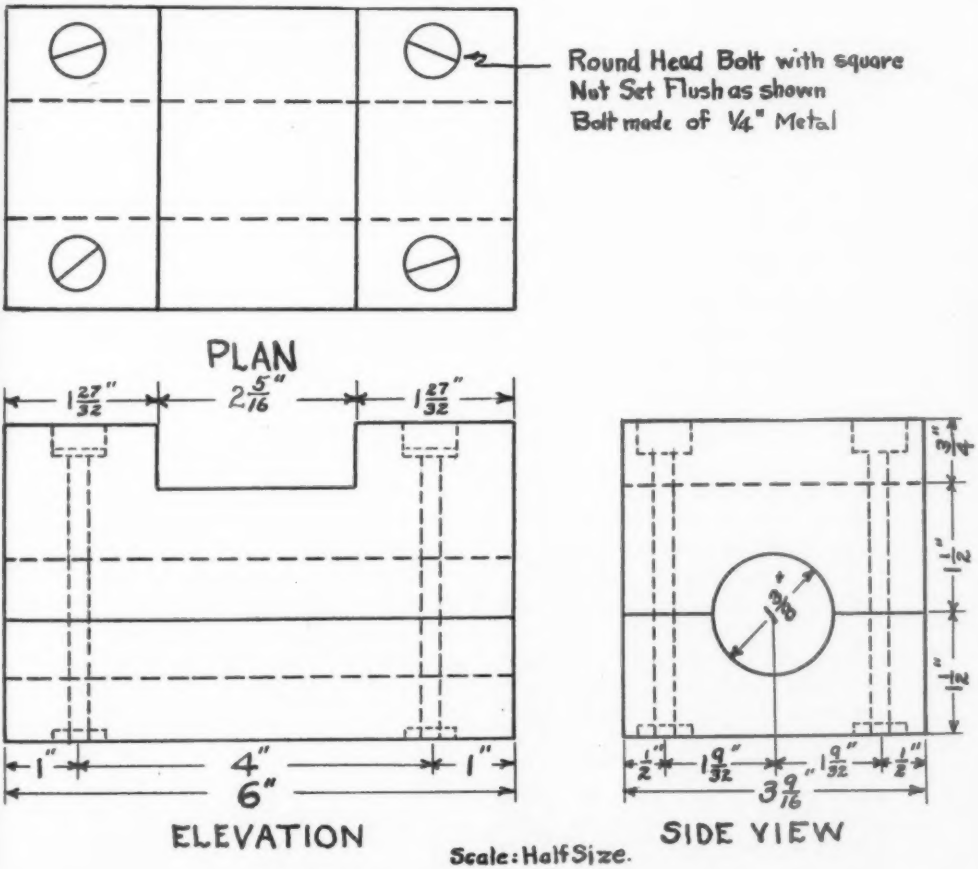
FIGURE 4

In servicing the piece the posts and duties of the various numbers of the gun squad remain nearly as prescribed in Training Regulations. Two changes become necessary, however. The post of Number 3 will be on the right, at the muzzle end of the 75-mm. gun, facing the tube and abreast of the firing assembly of the Adapter; he will load the Adapter with the .22 caliber blank, fire the Adapter, and remove the empty cartridge case. The other change made necessary is with the Number 2. He will post himself to the right of Number 3, and will be charged with loading the ball bearing into the Adapter. (For convenience, although not essential to the operation of the Adapter, both men can be equipped with short aprons with pockets, similar to those worn by carpenters; the pockets being designed to hold the .22 caliber blanks, the ball bearings, empty cartridge cases, waste, Trainer rammer, and pick for extracting recalcitrant cartridge cases.) Number 1 will perform as usual, with the exception of firing the Adapter. He will announce *Set* as usual when range

or elevation has been set off, but not until Number 3 has announced to him that the Adapter is set. If speed is not of primary consideration, Number 3 can assume his normal post and duties; Number 2 then operating the Adapter alone. Figures 4 and 6 show the posts of the gun squad in the modified set-up.

Thus far, we have had highly interesting and practical results from using the Adapter, and each drill produces additional data that is making its use more effective. For instance, the question of fouling in the "Trainer" tube was of some concern. Not only was this true in its original status, but also when used with the Adapter. After between 25 and 40 rounds, the tube became sufficiently fouled to make succeeding rounds erratic beyond practical use. In the "old" arrangement, removing and returning a "Trainer" tube not only interfered with the other three operators, so that firing had to cease, but it also took a fair amount

FIGURE 5



of time. With the Adapter, this is no longer a problem. When a tube becomes fouled to such a degree that a clean one is indicated, we simply withdraw the fouled tube and insert a clean one, the whole operation requiring only 2 or 3 seconds. The substitution is accomplished through not tightening to maximum the four bolts in the blocks. We cannot state, of course, just how much less than maximum these bolts are to be tightened, but a little experimentation soon determines the degree.

For training in direct laying with mobile targets, we have found the Adapter a most effective and highly interesting training device. No elaborate scheme is necessary for the moving target. We use a soldered stout tin object, roughly in the shape of a tank and fairly close to scale size, to each end of which is fastened a length of wire. The target is then pulled backward and forward between two enlisted men, stationed safe distances apart and at appropriate ranges. Direction can be made to change through use of a schedule, or by means of arm signals unobservable to the gun crew. Having the target drawn on a diagonal to the front will develop facility in making range changes and make the problem more difficult than merely moving the target parallel to the front.

An interesting point brought out was in the matter of trail shifting. Proficiency in arriving at a rapid solution of a problem was developed through training the trail-shifters to overreach, or overlead, the target, rather than to attempt to lay on it or even slightly lead it. This meant that the shift was a bold and rapid one, rather than mincing and slow; and the gunner could then go in to meet the target, using the handwheel. The trail shifters could sight over the tube and by watching the position of the piece in traverse could anticipate a necessary shift, thus making fewer shifts and with the maximum cooperation with the gunner, in a minimum expenditure of time. No trail-shifting devices, such as a pivoted T-frame, were employed, the guns standing normally on a tanbark surface.

FIGURE 6

We have also found that about 10 rounds is the maximum number for a squad to fire in one mobile target problem, since the eyestrain involved in following a target with the collimator sight, especially under artificial lighting, is rather intense.

The interest and competitive spirit that sprang up spontaneously among gun squads when using the Adapter was quite amazing. This was especially true with direct laying. The average time for a problem was about 2 minutes, with from 3 to 5 hits. Figure 7 presents a chart for recording the results of direct-laying mobile-target problems. It is based on a possible 100, with 10 rounds allowed, and is proportioned as follows:

		Max.
Number of Hits	5 points each	50
Time Required (from identification of target to "Cease Firing").	5 points penalty for each minute or fraction, over one	25
Commands (Speed, Accuracy, Positiveness, Manner, Perception of the situation).	2 points each	10
Trail Shifting (Alertness, Anticipation, Accuracy, Cooperation, Steadiness).		10
Fire Discipline.		5

SCORE SHEET—DIRECT LAYING

Squad or Soldier	5 Pts. ea. Max. 50 Hits	1 min. 25 2 " 20 3 " 15 4 " 10 5 " 5 Max. 25 Time	Speed Accuracy Positiveness Manner Perception of Situation Max. 10 Commands	Alertness Anticipation Accuracy Cooperation Steadiness Max. 10 Trail Shift'g	Max. 5 Fire Discipline	SCORE 10 20 30 40 50 60 70 80 90 100	Remarks

FIGURE 7

Fire discipline is minimized here, not because it is regarded as of minimal importance, but rather because, in such a scoring system as outlined, the chances are that without the Chief of Section maintaining good fire discipline the other factors will come in for severe penalties and the section will score low. Thus, in investigating a poor score, we would look at the factors from right to left. We have not attempted to gather any ballistical data; and aside from correcting for the increased site (about 40), believe that the data in the tables issued with the "Trainer" will still hold. However, this is somewhat conjectural, and granting time in the near future, we hope to do some "proving ground" work with the Adapter.

* * *

I should like to express my appreciation for their interest and assistance to: Colonel Beverly Ober, Major Matthew C. Fenton, Jr., Captain Roland D. Foley, 1st Lieut. Neal Harper; Lieut.-Colonel Walter M. Hess, USA, Instructor-Sergeant David Irwin, and Mr. C. G. Mallonee.

Field Artillery Family Party

THE 1938 Field Artillery Family Party at the Army and Navy Country Club, Washington, October 21st, was notable for the presence of three Chiefs of the arm: the *Primo Jefe,* Major General William J. Snow, USA-Ret., the fourth Chief, Major General Upton Birnie, Jr., USA-Ret., and the present chief, Major General Robert M. Danford. These, with their wives, and Colonel and Mrs. Oliver L. Spaulding, received the 216 guests, a record-breaking number.

Indeed, General Danford, in an address at dinner, commented on the fact that the field artillery officers present amounted to two-thirds of the total commissioned personnel in the entire corps back in 1907, when the reorganization of the arm accompanied its separation from the Coast Artillery. Of those in the service at that time, 31 years previous, he said, there remained 21 officers, five of them present at the party.

Amid prolonged and enthusiastic applause General Danford paid tribute to General and Mrs. Snow, the latter, he said, having taken such good care of the General, who retired in 1928, that it was rumored her husband would be the next Chief. The show was stopped again when the speaker paid his respects to his immediate predecessor, General Birnie, and when he referred to the presence at the party of Mrs. Augustine McIntyre, wife of the Commandant of the Field Artillery School, both among the best-loved of the Field Artillery.

Singing of Field Artillery songs at dinner was featured by another innovation. The distinguished author of the Field Artillery Song, Colonel Edmund L. Gruber, GSC, who, just thirty years ago, composed the song with the assistance of the now General Danford and the present Brigadier General William Bryden, led the diners in its rendition, and seldom, if ever, have the caissons rolled as vigorously as during the chorus that followed. The place-card design, reproduced herewith, was that of Lt. Col. S. LeRoy Irwin, who, since his first card of some years ago, never has been permitted to relinquish the detail, no matter where his duties assign him.

Indirect Laying For Moving Targets

BY CAPTAIN SHIRLEY R. HURT

AN effective method of firing on water-borne towed targets using indirect laying was employed by the 1st Bn 13th FA at Waianae, T. H., during July, 1938. The method is almost as simple as direct laying. Results when direct laying and indirect laying were used were very nearly equal. The targets were towed at 6 to 8 miles per hour directly across the front of the battery. The guns were on platforms or mats and had curved trail logs, allowing rapid traversing.

Both for sensing and for effect, in firing on moving targets, *line shots* should be obtained. To accomplish this, the command FIRE should be given at such a time that the plane of the trajectory will meet the path of the target *at the target.* This requires a lead to compensate for wind, drift, and lateral movement of the target during the flight of the projectile. In direct laying this was applied as deflection on the gun sights, and fire was commanded by the *gunner.* In indirect laying this lead was applied to a fire control instrument (BC Scope) and fire was commanded by *its operator.* A brief explanation of the two methods follows, with special emphasis on the *lead* problem.

Direct laying on moving targets was done as follows: The BC indicated the part of the target for each gun, announced a deflection to compensate for the lateral movement of the target during the flight of the projectiles, announced the projectile, pieces to fire, method of fire, and range. The gun crews applied these to the guns, and shifted the guns so that the vertical hairs of the gun sights were slightly in advance of the target. When the target arrived *at the vertical hair of the sight, each gun was fired by, or at command of, its gunner.* The BC made sensings and gave commands to get line shots, obtained a range bracket, and fired for effect to neutralize the target.

Indirect laying on moving targets was done as follows: Assume a target moving from left to right. An instrument (BC Scope) at the OP was laid parallel to the guns in the center of the zone, and base deflection recorded (the guns being referred to aiming stakes or to a common aiming point). The BC used field glasses or another instrument for observing. When the target appeared, the BC announced a shift from base deflection to place the guns *and the instrument* sufficiently in advance of the target to allow time for the other elements of the command to be applied to the guns. He announced the other elements of the fire command for the guns, the command for range being prefaced by AT MY COMMAND. He announced to the instrument operator LEFT 10 to compensate for the movement of the target during the time of flight. When the target reached the *vertical hair of the instrument, the guns were fired at the signal of the instrument operator.* Immediately the BC announced for the guns and instrument RIGHT 50. When the rounds burst, he sensed 5 LEFT. The instrument operator applied this to his instrument just as if it had been a command LEFT 5. (This is a point that may be confusing. If a round hit 5 mils behind the target, the fire command was 5 mils late and the instrument vertical hair had to move left 5 to fire the next round 5 mils sooner). The BC

gave fire commands for the next volley, from which he obtained a *line shot.* He then had the proper lead established. He continued fire for adjustment and effect, guns and instrument being shifted 50 mils right after each volley. Each volley was fired on signal from the instrument operator. In this way, the BC made all his fire *line shots,* sensible for range, and when the range was correct his fire was effective. The amount of shift before each volley was a matter of judgment. In each case, the shift command was given while the projectiles were still in flight, but the BC had to wait for the bursts, make sensings, and give fire commands to be transmitted to the battery and applied to the guns before they could be ready to fire. During all this time the target had been moving to the right. The consequences of poor judgment in this respect will be mentioned later.

The foregoing method was used by three different batteries, fire being conducted by eight different officers. Subcaliber 37-mm. shell and 75-mm. AA shrapnel were fired, some by daylight and some with searchlight illumination. There were several set-ups. At first the BC was at the guns and gave commands by voice to the guns and instrument operator. Then the OP moved a short distance from the guns and communication was by telephone, the telephone operator at the OP watching for an arm signal from the instrument operator, and the telephone operator at the gun giving an arm signal to fire. In one case the OP was on a water-tank tower 60 feet above the guns, 100 yards to the rear, and slightly to the flank. Communication was by telephone except that the instrument operator pressed a button which flashed a light at the guns as the signal to fire. This was done with a homemade apparatus. In most cases batteries were prepared for the command FIRE by telephone precautions, as "fifteen mils," "ten mils," "five mils," "FIRE."

Average ranges used were 2,000 yards for 37-mm. shell and 3,000 yards for 75-mm. shrapnel.

During the practice the difficult part of the problems both for direct and indirect laying was to sense for range, especially when the OP was only a few feet above sea level. A 37-mm. shell makes a small splash at 2,000 yards. Shrapnel, when it bursts in the air, frequently is too high to sense for range on the small towed panels, and the pattern of the shrapnel balls is visible only an instant. The elevated OP had a considerable advantage in sensing for range.

This system worked satisfactorily for the special case in which it was used. Obviously, it will not work as well if targets change speed or direction, or both. However, landing boats will probably be in large numbers and will necessarily be committed to one speed and direction. Incoming, outgoing, or obliquely moving targets will be more difficult for range adjustment but easier for deflection adjustment and therefore fire can be more rapid. Some weaknesses of the system are:

1. If shifts are larger than necessary, fire will be delayed.
2. If any shift is too small another shift must be given with consequent delay.
3. An error by the instrument operator will fire the whole battery with that much angular error.
4. Communication must be instantaneous.

When either direct or indirect laying may be employed, direct laying for service practice is faster. Indirect laying however, has some advantages:

1. The BC may be removed from the noise and distracting confusion at the guns. (To point out targets to indi-

vidual guns he would have to be at the gun position.)

2. The BC may be free to select an OP which facilitates range sensings. He may possibly employ small-*T* methods of conducting fire.

3. Gun crews need no special training. If they can shoot with indirect laying at stationary targets, they can shoot this method with short practice.

4. Complete responsibility of conducting fire is placed in the hands of an officer and not entrusted to gunners of limited experience.

The big possibilities of employing indirect laying are:

1. A beach battery may occupy a better tactical position, safer from hostile naval gunfire.

2. One beach battery may frequently reenforce the fire of another, despite the fact that the targets are not visible from the guns.

3. Fire direction by a battalion commander and staff may take the place of isolated batteries and uncoordinated fire.

There may be some possibility of applying this method to moving targets on land. The practicability, if not already decided upon, remains to be determined by some organization with adequate terrain, ammunition, and curiosity to try it.

A WRIT (Solution on Page 485)

Conduct of Fire, Lateral, Small-T

1. *a.* In lateral conduct of fire when may range be sensed by rule?
   b. When is the deflection considered correct in lateral conduct of fire?

2. You command a battery of 75-mm. guns. From the Fire Control Data Sheet, you obtain the following data for a precision adjustment with Shell Mark I, Fuze Short: Compass = 3260, Angle $T = 240$, $r = 3000$, $R = 4800$.
   Give all the factors necessary for your adjustment.

3. Your 75-mm. battery is in position to your left rear. You are to register on the base point with Shell Mark I, Fuze Long. Angle $T = 260$, $r = 4000$, $R = 5000$. Your factors are as follows:

   $r/R = .8$, *Modified* s = 6, Fork = 8

You obtain your data from a firing chart.

Complete the problem according to the commands and sensings given below:

Commands	Elev	Dev	Rn	Df	Remarks
Ca 480, Sh Mk I,					
FL, No. 1, 1 Rd, Q	200	50 R	?		
		20 L	?		Change r/R
		4 L	—		Make a 2-F elev. change.
		5 R	+		
		Line	—		
		3 R			
		4 R			
		3 R			
		Line	+		
		4 L			
Next Command?					

Field Artillery Association Medal

UTAH

The University of Utah award of the Field Artillery Association Medal to its outstanding ROTC field artillery student was made to Cadet Lieutenant Colonel George M. Cummins, 747 South 6th East Street, Salt Lake City.

Cadet Cummins has received fourteen "A" grades, and one "B" grade in his ROTC course, and won the competition for the medal with a mark of 93.5 percent. Each year of attendance at the institution he has been a member of the "Merit Battery." While attending summer camp, 1938, at the Presidio of Monterey, Mr. Cummins fired an axial precision problem, a lateral precision, and a lateral precision from advanced OP, all three problems being rated "Superior."

PURDUE

Mr. Jack Marlin Rudolph, Cadet Colonel of the Purdue regiment, was outstanding among his corps, and adds the Field Artillery Association Medal to his other distinctions, the Cary Gunnery Silver Cup, and the Albert Smith Award, both for junior year achievement, and membership in Scabbard and Blade, the Purdue Order of Military Merit, Phi Lamba Upsilon, the national honorary chemical society; Tau Beta Pi, national honorary engineering fraternity, and Pi Kappa Alpha, social fraternity. Mr. Rudolph's home is at Rural Route 4, Boonville, Indiana.

The Forerunners of Sill

BY MASTER SERGEANT MORRIS SWETT, FA

A History of Artillery Schools in the United States

EDITORIAL NOTE. *Master Sergeant Morris Swett becomes eligible for retirement December 31, 1938. Known to as many Field Artillery officers, Regular, National Guard, and Reserve, as perhaps any man in the army, by reason of his long service as Librarian at The Field Artillery School, his retirement will be viewed with regret by a host of friends. His "bookish" career began with duty as assistant in the Library, USMA, in 1910. For five years he remained there, and then was transferred to the School for the purpose of establishing and organizing the library. For the next twenty-three years he executed that service, how well the entire arm knows. Master Sergeant Swett's son, Tim, is currently playing regular center on the football team of George Washington University, where he is a student.*

MASTER SERGEANT MORRIS SWETT

THE first English emigrants to America brought the military courage of their forefathers with them. As early as 1637, there was formed in the province of Massachusetts Bay The Ancient and Honorable Artillery Company of Boston, it being the first company to receive an independent charter in North America. This organization advanced steadily through nearly three centuries and is still carrying on in Faneuil Hall under its claim of being the oldest artillery organization in the United States.

Accepting with loyal response the trust placed upon them by the company's first commander, Captain Keayne, the leading citizens of Boston became members of the unit, donated gifts for its upkeep, and took active interest in its drills and ceremonies. So respected did it become by the community that a law of the colony later on forbade any Town Meeting or any other military practice in Boston on the day set apart for the training of the Artillery Company. In 1645, its members joined forces with Myles Standish and his pilgrim soldiers in an expedition against the Indians. In King Philip's War, in England under Cromwell, and in the French and Indian War, a large representation of the Company took an active part,

many of them becoming leaders.

A British artillery command, on its way to Quebec, spent the winter of 1766 in Boston, and its officers—some of them probably from the Royal Military Academy at Woolwich—trained their American cousins in the theory and practice of gunnery. This was the beginning of our education in the science of artillery.

On the eve of the Revolution the company possessed four brass 3-pounders that were bought in England by the General Court of Massachusetts and presented to the Artillery Company. Later Dawes, one of the members, was instrumental in stealing these cannons from under the close supervision of the British at the outset of the Revolution. Since these four pieces constituted the only ordnance of the Colony, they were naturally highly sought. Hidden in carts and barns, they led a checkered career until they showed up mounted at Bunker Hill, where, during the battle, two of them were captured. The other two went through the Revolution in Freedom's cause, manned by men who had received a trust, were carrying on a tradition, and had sacrificed on the altar of training.

"I give and bequeath two heifers or cows to the Captain and Officers of the First Artillery Company to be kept as stock constantly and the increase or profit of the cows yearly to be laid out in powder or bullets." So ran the will and testament of Captain Robert Keayne at his death in 1656, Boston, Mass.

As this is the first instance on record where a cow actually begat ammunition, so it is the first note in America struck for artillery training. Captain Keayne, besides bequeathing the cattle, gave "a room for an armory," "five pounds for the encouragement of that company to be laid out in pikes and bandoliers," and "five pounds more towards the erecting of a platform planked underneath for two mounted pieces of ordnance to stand upon."

His interest in this subject is illustrated by the amazing pains he took to explain the future needs and conduct of the organization. A shed of boards was to be raised over the platform to keep the pieces dry "and preserve them from sun and weather and this to be raised in the most convenient part of the training place in Boston where it shall be most fit for that use and where at a convenient distance against some hill or rising ground there may be a good butt or kind of bulwark raised of earth that may receive the shot of those pieces and may be free from endangering any that may unexpectedly pass by or behind the butt in case they overshoot, which butt may be cast up or digged at the bottom of a hill without any charge by the Company themselves, in two or three of their training days and my end in this is, that the Company may be trained up (or so many of them as desired it), in the use, exercise and experience of the great ordnance as they are in their muskets that they may learn how to traverse, load, mount, level and fire at a mark, etc., which is needful a skill for a soldier as the exercise of their ordinary arms. I suppose the country will willingly lend the company two such pieces for so good a use as this is, if the town itself hath none such to spare and will give them a barrel of powder or two to encourage them, to begin a service that will be so singularly useful for the country, the bullets will be most of them found and saved again if the hill or butt against which they shoot be not so low and narrow that they overmount and shoot aside at random, now as many of that company or oth-

ers which desire to learn the art of gunnery (so needful for every Captain and officer of a company to be experienced in) they may enter their names to be scholars of the Great Artillery and to agree that every one that enters his name may give so much for entry and so much a year afterwards as you do at the Artillery which money will serve to lay in provisions of powder, shot, sponges, budge-barrels, cannon baskets and some allowance to the Mr. gunner that shall take pains to instruct them, if there cannot be some skillful and sufficient man found, that will think the honor of the place to instruct such a society in so noble a service recompense sufficient that they have an opportunity not only to exercise their own skill, but to do good to the country and to willing scholars that so thirst after experience as we see the Captain and the rest of the officers of the small artillery do freely expend their time to instruct others in the best skill themselves have attained, and look at it as a reward enough that their pains are accepted and the company edified by it, besides their being many ship masters and gunners that resort to this country to have good skill in this art, the Company I doubt not upon their request might have their help sometimes and direction herein and he that is chosen to this place may have the title of the Captain of the great artillery or Mr. gunner and there may be a time appointed once in a week or fortnight for the scholars to meet to spend two or three hours, either forenoon or afternoon, for their instruction in it. Now all that meet cannot expect to make every one a shot apiece or but one man two shots at one time and the rest may observe as much by the manner of their performing it as if they had done it themselves, and for further encouragement to help on this exercise besides the five pounds given before towards the platform and the other five pounds for pikes, etc. . . ."

The establishment of artillery schools was first suggested, in our service, in a letter written by Colonel Harry Knox, September 27th, 1776, to a Congressional Committee at the time visiting Army Headquarters. Among other recommendations having in view the efficiency of the army of which he was head, was the following: "As officers can never act with confidence until they are masters in their profession, an academy established upon a liberal plan would be of utmost service to the continent, where the whole theory and practice of fortification and gunnery should be taught; to be nearly the same as at Woolwich, making allowance for the difference of circumstances—a place to which our enemies are indebted for their superiority of their artillery to all have opposed them." Although the academy was not established during the war, it was evident that early in the lifetime of artillery in this country the necessity for study by an officer of that arm was recognized.

At the battles around Boston the lessons received from the British were utilized, especially by Henry Knox, once an active member of the Artillery Company, and Washington's Chief of Artillery. During the winter of 1778 General Knox, with the artillery, was at Pluckemin, N. J., and here he established "an academy where lectures are read in tactics and gunnery."

During the Revolutionary war the experience of the field supplied that practical instruction which enabled the artillery to come to the front rank in the army. The necessity of schooling artillery officers was fully appreciated; and accordingly, on February 13, 1779, it was resolved by Congress "that, when it shall be thought necessary, the commanding officer of artillery shall send officers of artillery to visit

the laboratories, foundries and manufactories, to the intent that they may thereby gain an insight into the mechanical branches of their profession. And such number of artillery officers, in the opinion of the commanding officer of artillery, with the concurrence of the commander-in-chief, can be spared from their duties in the field, shall, at every convenient season, be stationed at all or any of the principal laboratories, to be instructed in the laboratory art, that a knowledge thereof may be disseminated through the corps."

Early in 1783 it was seen that the American Revolution had been successful. In the plans for the peace establishment of the Army the necessity for military education was not forgotten. It had been impressed on every officer of experience; on Knox, whose artillerists needed a training like "that of Woolwich"; on Alexander Hamilton, formerly an artillery officer under Knox; on Washington himself, who daily felt the necessity for artillerists.

The foreign officers in our army had demonstrated the immense value of professional training. Duportail, Kosciusko, Villefranche, Steuben, and Lafayette are names that come to mind at once.

Hamilton's plan contemplated the establishment of four schools—one of these the school of artillerists and engineers. The staff for this school was to consist of a director; 6 professors of mathematics; 4 of natural philosophy and geography; 2 of chemistry, including mineralogy; 3 architects; 4 drawing masters; 1 riding master; 1 fencing master. This school of artillerists and engineers was to be the school of application—like the present Field Artillery School. The school was to be provided with proper apparatus and instruments for "philosophical and chemical experiments, for astronomical and nautical observations, for surveying, and such other processes as are requisite." According to the suggestions of Hamilton and Knox "it would also tend greatly to the perfection of plan if the academy of artillerists and engineers was situated in the neighborhood of foundries or cannon."

An important measure of Congress in providing for the general defense of the country, and especially to meet the threatening troubles with France, was that of 1794, granting authority to raise a corps of artillerists and engineers, to be incorporated with the battalion of artillerists then in the service; the whole number of enlisted men not to exceed 992. Five years was the term of enlistment. This small number was divided into sixteen companies with full number of company officers and thirty-two cadets. Attaching cadets to the regiment of artillerists and engineers in 1794 was doubtless the first attempt to establish anything like a course of instruction for that arm; but it was generally admitted to have been a very imperfect scheme. Referring to this subject, the Secretary of War, in a letter dated June 28th, 1798, said: "It was supposed that these cadets would form a nursery from which qualified officers might be drawn to fill vacancies; but it must occur, without proper masters to teach them the sciences necessary to the artillerists and engineers, this nursery can produce no valuable plants." The object of this mode of organization was to provide for the instruction and education of as large a number of officers as possible, and at the same time to be able to form them into an effective corps on short notice, simply by addition of enlisted men. To carry out this intention, the law further authorized the purchase of books, apparatus, and instruments. This corps was further increased, after

the same plan, by the law of 1798, which authorized an additional regiment of twelve companies, with the necessary books and apparatus, and also four teachers of the arts and sciences, for the instruction of the officers and cadets of the corps. This organization of two regiments continued until the difficulties with France blew over, when, in 1802, the whole was formed into one regiment of 20 companies, with full number of field and company officers. The engineers, at the same time, were separated from the artillerists, and formed into a distinct corps, to be stationed at West Point and to constitute the Military Academy.

The establishment of the corps of artillerists and engineers was the first legislation toward introducing scientific instruction into the Army. The object and necessity of it was at the time clearly set forth to Congress in a special report of the Secretary of War, in which he said, "It is deeply to be lamented that a very precious period of leisure was not improved toward forming among ourselves artillerists and engineers, and that owing to this neglect, we are in danger of being overtaken by war without a competent number of characters of these descriptions. To form them suddenly is impracticable; much previous study and experiment are essential. If possible to avoid it, a war ought not to find us unprepared."

During the Revolutionary war, skillful engineer and artillery officers were obtained from France and Prussia; but France became our enemy, and Prussia, as well as all other nations in Europe, who were then engaged in war, required all of their officers at home, and thus this supply was cut off. Necessity, therefore, forced our government to take the wisest course, and make provision for the formation among ourselves of educated and scientific officers. Teachers, books and apparatus had to be procured, and a system of instruction adopted, and it was not until after the Military Academy was enlarged in 1812 that much was accomplished. The artillery branch of the service has always labored under special disadvantages as regards means of improvement. When not engaged in frontier service against the Indians it was scattered along the coast, in forts, principally by single companies, where they had but little incentive and few of the necessary appliances for acquiring much knowledge in their particular branch. Being always looked upon, and used, as sort of reserve corps or emergencies, to perform infantry duty, their chief efforts were to become proficient in that branch, and their endeavors in this line were not without success. The inspectors of the army were those who knew little or nothing of the requirements of artillery, and gave every importance to the minor infantry details; hence officers, to avoid being blackballed by this system of malinformation, devoted themselves to that branch in which alone they were expected to be perfect.

In compliance with War Department orders dated April 15, 1824, there was established at Fortress Monroe "the artillery Corps of Instruction"—the forerunner of the present Coast Artillery School and Field Artillery School —which directed that eleven companies of artillery should be stationed at that fortress, the whole to constitute a "corps of instruction." Colonel John Rogers Fenwick, 4th Artillery, was placed in command. He was assisted by Lieutenant-Colonel Abraham Eustis, 4th Artillery, and Major A. C. W. Fanning, 2d Artillery, one director and one assistant director of artillery, one instructor and one assistant instructor of mathematics. These officers formed the staff of the school. The organiza-

tion and plan of the school was set forth in a report of the Secretary of War (Calhoun), who said, "In order to improve the discipline of the artillery, eleven companies have been collected at Fortress Monroe, which have been formed into a school of practice for the artillery. The dispersed condition of the artillery renders the measure necessary to the improvement of its discipline. By passing the whole corps, in succession, through the school, a degree of perfection will be given to the discipline of the artillery nearly, if not quite, equal to that which could be obtained were it practicable to collect it into one body, instead of being dispersed, as it is, in garrisons in the different fortresses along the whole line of coast. To carry the arrangement into full effect will require the aid of Congress. An appreciation, in particular, will be necessary to furnish horses for instruction in the light artillery exercises." Buck Roe farm on Mill Creek, in the vicinity, was rented for the exercises of artillery and practice in field fortifications. Departments of Mathematics, Engineering, Military Drawing, and Chemistry were established.

Unfortunately for the artillery, Congress, at this time, was in opposition to the administration, and, opposing every measure of the latter, passed resolutions of inquiry by what authority the school was established, what was the cost of it, and other things tending to check its progress. The reply made by the Secretary of War set forth so fully the object of the school that it may be quoted: "It is an undisguisable truth that the virtues of an army employed during a long period of peace and inaction, in little less than the ordinary course of garrison service, are in danger of deterioration. To guard against such results the school of practice for artillery was established. The benefits which were believed naturally to spring from the system are important and manifold. Among them may be noted, in general terms, habits of uniformity and accuracy in the practical routine of service; fresh incentive to the cultivation of military knowledge; emulation and esprit to corps among the troops; and mutual conformity and general elevation of character among officers."

Another Secretary of War, with less liberal views, coming to office about this time, the school was reduced in 1828 to six companies, and no encouragement was given for its maintenance. Owing to the want of material, in the form of proper kinds of ordnance, machine implements, stores, books and apparatus, the school made no progress. In fact, without encouragement of this kind, progress was out of the question, and could not reasonably be expected.

In 1831, five other companies were added to the six before mentioned. But in the following year the Black Hawk disturbances took place, as well as trouble among the Cherokees in Alabama, and the school was reduced by several companies. These had scarcely been replaced by others, when, in 1836, the Seminoles broke out into hostilities, and soon thereafter nearly all the artillery was sent to Florida, where it remained in that most trying service until 1838. At that time patriot troubles took place in Canada, and a large portion of it was sent to the northern frontier. The Seminoles in Florida, the patriot troubles on the Niagara frontier, and the complications arising out of the northeast boundary question, kept the artillery on the go until 1841. It had scarcely settled down to its peacetime duties when the war with Mexico called it again into the field, mostly as infantry. From these various causes the first attempt

at an artillery school met with but little success, and finally failed. After the close of the Mexican war, in 1848, the artillery was again scattered and distributed in California, Oregon, New Mexico, upon the Northern Lakes, and upon the Atlantic and Gulf seaboards. In this state of dispersion very limited opportunities existed for instruction or improvement in the artillery branch; and, besides, the officers had now become so confirmed in infantry duties that they hardly looked to anything beyond keeping perfect in that branch. A general apathy and helplessness existed on the subject of artillery.

In the meantime other influences had been brought to bear in the matter of artillery instruction. The "school of practice" at Fortress Monroe continued to exert some of its influence. From the date of the breaking up of the school, in 1836, at the beginning of the Seminole disturbances, down to the Mexican war, practical instruction was confined, of necessity, to drills with various kinds of old-fashioned artillery with which, in limited quantities, the army was supplied. More attention was directed to that subject by the authorities than before. In 1855 Mr. Jefferson Davis, Secretary of War, writing to the chairman of the Senate Military Committee, said: "Much may be effected for the improvement of the artillery by the establishment of the school of instruction." This was followed by orders directing four batteries of artillery to concentrate at Fortress Monroe and form a school of practice, and, in 1857, Lt. Col. Harvey Brown, 2d artillery, was instructed to proceed to organize the school. The official designation was "The Artillery School." There was every reason to believe that the institution, started under circumstances so much more favorable than those surrounding it in 1824, would have been productive of much more good to the artillery, had not the breaking out of the Civil War put an end to its existence. Imperfect as it was as a school of practice, many officers had already received the advantages of it, and the seed there sown ripened among them into good fruit, as was demonstrated during the Civil War. At the close of that war, the artillery was again dispersed into small garrisons, and nothing was done until General Grant, appreciating the importance of the arm, again, for the third time, established a school of practice at the same place, in 1868. One company from each of the five regiments of artillery formed the garrison. The captains were instructors and the lieutenants were the students. Under an energetic regime the school made progress, and new courses were added as required to keep abreast of the times.

In 1869, in pursuance of a project of the Secretary of War, four batteries were assembled at Fort Leavenworth for the purpose of establishing a field artillery school. The post fixed upon was Fort Riley, where the batteries were accordingly sent, for two years. Judged alone by the brief term of its existence, the school was a failure. Yet the objects to be attained and which led to its organization were excellent. Its failure resulted not from any defect in the fundamental principles of the establishment, but from other causes. Some of the objects for which the school was organized were:

1. To introduce into the field artildery uniformity of practice in all that pertained to instruction and maneuvre.

2. By a well-established system of competitive drills and firings to weed out everything which was not of practical utility, and at the same time develop and suggest improvements in the guns and projectiles, that by timely

advances they should keep pace with improvements in small-arms.

3. To study the horse and to determine the best classes and breeds for the light artillery service.

4. To serve as a school of practical instruction for officers, where would be taught not only the duties of a battery as an artillery unit, but also those of the artillery brigade, that is, the administrative and fighting body which has superseded the battery for war purposes not only in our own experience, but in the practice of every nation of continental Europe.

5. To enable officers to acquire a knowledge of the mounted service required for siege and mountain artillery, parks and convoys.

The utility of a school of this character, and its importance to the artillery, could scarcely be overestimated. It was desired to maintain the field batteries on the footing of highest attainable efficiency consistent with proper economy. This the field artillery school would have rendered possible had it been supported as it deserved. Before systematic organization could be effected, however, the troops were diverted from their proper duties to serve as cavalry on the frontier; the men were taken as teamsters; the horses (draught), not intended for this kind of service, were broken down; finally the commandant was kept away indefinitely at a time when his presence with the command was indispensable to insure a proper beginning for the institution. In a word, the field artillery school was strangled in its infancy.

However, on January 29, 1887, an Act of Congress authorized "a school of instruction for drill and tactics for cavalry and light artillery," but it was not established until March 14, 1892, when Fort Riley was designated as the location, the school to be known as "The School of Application for Cavalry and Light Artillery." The school consisted of one regiment of cavalry, batteries of light artillery not to exceed five, and such other officers and enlisted men as may be assigned to duty at the school. The commanding officer with the field officers of cavalry and artillery formed the school staff, and the adjutant of the cavalry regiment was the secretary. The principal object was instruction in the combined operation of cavalry and light artillery, but one-half of the year was devoted to the special duties of each arm, the other half of the school year given to field exercises of the two arms combined. This school later became known as the Mounted Service School.

The war with Spain caused the school at Fort Monroe to close in 1898, after an uninterrupted period of thirty years. The school was resumed in 1900 with marked change in policy to meet new conditions. In order to give a course of instruction in artillery as soon as possible to the many new lieutenants who had come into the artillery branch as a result of the increases in the artillery in 1898 and 1899, it was decided to give a course of one year only.

In 1907 came the separation of the Field from the Coast Artillery, after which the Artillery School was reorganized as the Coast Artillery School and its curriculum changed so as to exclude matters that did not pertain strictly to coast artillery.

In 1908, it was advised to establish in our service a school of fire for field artillery and of allotting to that school a generous allowance of field artillery ammunition. It was believed that through the medium of such a school instruction in the conduct of fire would be much more thorough, comprehensive, and uniform than was possible under conditions at that time.

After visiting the field artillery schools in Germany, Austria, Hungary, Holland, England, and Italy, Captain Dan T. Moore, 6th Field Artillery, prepared and submitted an extensive report on these schools to the General Staff, after which he was detailed as a member of a board of officers to formulate detailed plans relating to the establishment of the School of fire for Field Artillery, at Fort Sill, Okla., or at some other suitable locality. Fort Sill was selected and the first course began September 15, 1911, with Captain Moore as its first commandant.

The establishment of the school marked the beginning of a new era. It made technical training compulsory, and inaugurated a system through which an opportunity was given to officers of all grades to demonstrate their ability to conduct fire. Officers of other arms who had opportunity to see the results were impressed with the fact that at last the field artillery was beginning to be able to give them proper support and to deliver effective fire promptly.

The growth of this school was a gradual process which depended mainly upon principle, personnel, and environment. In all of these the school has been fortunate. The basic principles of its purpose and methods, the personality of the men guiding its formation and early operation—all have been remarkable and admirable. At first the methods of the school were the subject of much discussion and criticism. This was to have been expected.

One of the strongest supporters of the proposed school was Colonel E. St. John Greble, Field Artillery, then a member of the General Staff, who continuously spurred Captain Moore with encouraging letters, one of which read. "Of course, you are going to have troubles and lots of them, but it is your business to get that school in running shape. Any damned fool can take hold of a well-organized thing and run it. It is only the wise gent who can organize, and you were considered wise enough to start this school. Now, you do it, and take this advice as from a father. Complaints about what cannot be helped lessen the force of complaints concerning bigger matters. I think that to make the School of Fire a success is the most important thing we have to do in the Field Artillery, and you will have the backing of every man who has the interests of the Field Artillery at heart, so make your plans to make it the best ever, and if you cannot get all you want make it a success anyway." The spirit with which Captain Moore undertook this tremendous task was shown in his reply to Colonel Greble, when he said, "For personal reasons, I naturally do not want to fail, but there are other reasons which make personal reasons insignificant, namely, the good of the Field Artillery."

And with such able field artillerymen as Edward F. McGlachlin, Jr., Fox Conner, Augustine McIntyre, John W. Kilbreth, Daniel W. Hand, Leslie J. McNair and others on the faculty, the Field Artillery soon recognized the good the school was doing.

It was evident that the field artillery had been given an opportunity to shoot and to find out how to hit. The full effect of the school was seen when the students of those days took command of corps, divisions, brigades and regiments, as well as other highly important positions, during the World War. The day of haphazard methods and accidental efficiency had passed.

In the Spring of 1916, when the Mexican border troubles arose, the Field Artillery School was suspended, the instructors relieved, and the instruction batteries sent to the border.

From then until the Spring of 1917 the school was without students or instructors, and only the exigencies of the World War saved it from possible abandonment.

When America heard the call of war in the spring of 1917 and began rolling up her sleeves for the fray, one of the first of her many rude awakenings was the realization that she was sadly deficient and years behind the other great nations of the world in one of the most important branches of warfare—Field Artillery. But no sooner was the realization of the deficiency awakened than a determination was made to equal and if necessary to excel all others in the great race for training field artillery officers.

On July 27, 1917, Colonel William J. Snow, 4th Field Artillery, was detailed as commandant, and immediately took charge of the work of organization. Colonel Snow went to Washington and was back in ten days with three quarters of a million dollars to spend. Ground was cleared and buildings went up with lightning rapidity.

A commission of five French Artillery officers was sent to the school. Upon their arrival they were called into session with Captains R. M. Danford, F. W. Honeycutt, and R. McT. Pennell, to plan a course of study designed to meet the emergency then existing, and, on October 1, 1917, the first war class was assembled. This class was unique in that its members were drawn from almost every branch of the service and from the Regular Army, National Guard, and National Army. The class was quartered in tents south of the school library. Such was the School of Fire when it began its task of turning out 15,000 artillery officers per year for the duration of the war. Happily however, even before the first war class had finished its ten weeks' course, large and well-appointed buildings were being completed.

During this period approximately 2,000 acres of land adjoining the Fort Sill reservation were leased to provide necessary additional ranges, and the school troops were increased from three battalions to three regiments.

The following spring found the school crowded to its capacity and, almost before it was realized by even those who had it in charge, it had dwarfed all former expectations and had become what they had hardly dared dream—the largest and best field artillery school in the world. Many passed through the school and were transferred to other field artillery training camps as instructors, but many also remained at the school as instructors; and in the short space of time that had elapsed since the field artillery began its expansion, many departments have come to be recognized as absolutely essential, which were undeveloped prior to the war.

The achievements of the school set forth in the World War were far-reaching and it is doubtful if any one will ever be able to set down in detail the part it played in bringing to an end the struggle that waged overseas.

The school is a glowing memorial to the pioneers who dared not only to scheme and to plan, but to put these schemes and plans into execution. The school is responsible to the nation and not to the individual, both in its methods and its results. It is a machine in which a mass of raw material was transformed into a product which was recognized the world over.

EPILOGUE

In 1915, the FAS Library contained about 500 volumes, all military texts and histories. With so small a collection and a small group of staff, faculty, and students, our book circulation was very small—about five books per day.

There was no fixed amount of funds allotted for the purchase of books. Any book recommended by an officer was purchased. Approximately twelve books per month were purchased during the year 1915 and the early part of 1916. During the summer of 1916 and until the United States entry into the war, no books were purchased.

During this dull period I hunted through the basements, storerooms, and attics of post buildings, and found many old but valuable books. In the Post Library—then located in the Post Gym—now the Post Exchange, I found an excellent collection of Annual Reports of the War Department, dating back to 1870. This "hunt" netted us about 1,000 volumes, and made an excellent nucleus for a military library.

During this same period the members of the Detachment became hungry for "something to read." I organized a Reading Club consisting of members of the Detachment, and permission was granted to keep their books in the Library. Soon the officers and their wives asked the use of this "fiction library" and many donations of books were added by them. This was the beginning of our fiction collection.

During the War the Assistant Commandants were very generous in their allotments for the library and during 1917 and 1918 three or four thousand volumes were purchased.

In 1919, when the Commandant was instructed by the War Department to dissolve War Worker Activities at this station, I asked permission to select from the Camp Library—at Camp Doniphan—any books suitable for our library. This netted us about 5,000 volumes. The rest were shipped to San Antonio.

Since 1919 we have been allotted the same amount of funds that we get now, and with begging and stealing books we have been accumulating about 2,000 volumes a year.

Circulation records have been kept only since 1928. In that year it was 23,000, as compared with over 27,000 for 1937-38.

—Master Sergeant Morris Sweet.

NOTICE OF ANNUAL MEETING, U. S. FIELD ARTILLERY ASSOCIATION

In compliance with Article VII, Section I, of the Constitution, notice is hereby given that the Executive Council has fixed 4:45 PM, Wednesday, December 14, 1938, as the time of the annual meeting of the Association, to be held at the Army and Navy Club, Washington, D. C.

The business to be disposed of will be the election of three members of the Executive Council (of these, two are to be elected from the Regular Army, and one from the Field Artillery section of the Officers' Reserve Corps) and the transaction of such other business as may properly come before the meeting.

Proxy cards are being sent to all active members of the Association within the continental limits of the United States, as required by the Constitution, and it is desired that they be returned promptly. Nomination may be made on the proxy cards, or from the floor at the meeting.

SHOTS FROM THE RILEY MANEUVERS

1. MECZ march.
2. Smoke of battle.
3. Howitzers going up.
4. Dusty going.
5. Prepared for inspection.
6. A rapid advance.

Santa Barbara Day

ON THE fourth day of December, it is supposed that New England gunners will continue their annual practice, the celebration of Le Jour de Ste. Barbe, with a dinner on the anniversary of their patroness's legendary martyrdom.

This celebration is the longest-continued observance of the day in this country, so far as is known, although it has been done for centuries abroad.

This is with the notable exception provided by Lt. Col. R. Townsend Heard, FA, who, since his service with the French during the World War, where he was impressed by their "quaint and gracious custom," as he writes, of celebrating La Fete de Sainte Barbe, has been interested in spreading the cult and traditions of the patron saint of the arm, usually by getting up a dinner at which only field artillerymen were present. Some years ago, while serving with the 12th Field Artillery, he initiated the awarding of a certificate of membership in the Society of Santa Barbara, to the field artillery brides, at the conclusion of the traditional caisson ride. He reports that he has kept a very careful check on the registration number of those awarded and that he has some 200 embossed certificates on hand, requiring for their authentication only the official seal of the regiment, the countersignature of the regimental commander, and his own, as Secretary of State to Santa Barbara. These certificates he offers are at the service of any regimental commander favorably disposed to adoption of the practice, which has been carried on within the Second Field Artillery Brigade since his departure from that organization. Indeed, within the last month, the Secretary of the Field Artillery Association has been called upon by one of those regiments to locate copies of the certificate in order that any contemplated ceremonies may be duly authenticated.

To the explanation, advanced in the May-June, 1937, number of THE JOURNAL, of the connection between the lightning stroke that destroyed the saint's cruel parent, and her patronage of gunners, Colonel Heard adds that when, in the Middle Ages, cannon began to be referred to as "The Thunderbolt of Man," the relation became obvious, and that it was after the Fourteenth Century that cannon appeared in representations of the saint.

Michigan Regiment Honors Day

Michigan's 119th Field Artillery, possessing the unusual distinction of 18 graduates of the National Guard and Reserve Course at The Field Artillery School among its officers—and they expect to make it 20 with the graduation of the present class—has added to its evidence of high spirit and morale (substantiated with 36 memberships in the Field Artillery Association), the Order of Santa Barbara, a society restricted to such graduates, whose purpose shall be the fostering of artillery spirit and professional pride, recollection of pleasant experience at the School, and the increase in knowledge of benefits to be derived from attendance thereat. A committee, consisting of Major George B. Ely, Captains William Clark, William Briggs, and Howard Derby, and Lieutenant Leo J. Conway, now is engaged in drafting the constitution of the Order, which contemplates no dues nor regular meetings, save on Santa Barbara Day, December 4th, when an annual dinner is planned. In case that

day falls on a Sunday, as this year, the dinner is to be held on the day following. The Secretary, Lieut. Conway, writes: "It is our earnest hope that this organization may become a nucleus for a national organization having like membership and intents and purposes."

A quickening of interest, simultaneous and unfostered, has arisen lately, toward crystalization of field artillery spirit about Santa Barbara as a symbol.

For instance, in the Field Artillery ROTC unit of the University of Nebraska, a movement toward the organization of a national honorary society of college artillerymen, the Order of Santa Barbara, has been discussed. Tentative plans suggest chapters at each unit, the proposed name for the Nebraska chapter, for example, being "The Cornhusker Battery."

Brotherhood of Sainte Barbe

One officer, an instructor with the Organized Reserves, has mimeographed copies of the late G. K. Chesterton's "Ballad of Saint Barbara," for distribution in the regiment to which he is assigned. (Fragments of this poem were printed in the May-June, 1937, issue of this JOURNAL.)

The Command and General Staff School *Quarterly* for March, 1938, contained a translation by Major B. R. Legge, Inf., of an article in *Revue D'Artillery* by Captain Duvignac, "The Sedentary Cannoneers of Lille." A summarization follows:

"An interesting and historic organization of French artillery. Established in May 1483 by the magistrate of Lille as an organization of cannoneers and musketeers, with an effective strength of 30, known as the brotherhood of Saint Barbe. They were entitled to recruit among all worthy persons of standing in the community, provided the candidates were not previously pledged to join either the archers or crossbowmen.

"Each Sunday a dozen or more were obligated to meet in the garden near the Fives gate. They were to be paid by the city ten large Flanders coins and ten lots of wine of six patars provided there were at least six cannoneers present and provided that each fire at least 3 rounds. (One sees that, from their origin, wine entered into the tradition of the artilleryman.)

"The rights and privileges of the brotherhood of Saint Barbe were confirmed by Philippe II, Count of Flanders, in 1497, by letters patent, which gave the brotherhood the privilege of taking their arms and equipment with them wherever they went and provided further that when firing in their garden after having cried: 'stand aside,' if they had the misfortune to wound or kill a passerby they would not be fined or held responsible.

"In 1511 when the soldiers of Henry VIII of England approached the city, their strength was raised to 80 and later in 1570 to 100.

"They devoted themselves to the defense of Lille, kept watch at the gates during periods of alert and took a strong part in case of trouble. They likewise participated in public fetes and parades and fired 'salvos of rejoicing.'

"To recompense their services they were granted in 1625, in addition to the regular Sunday issue of six lots of wine, four more lots of six patars each.

"During the 3 weeks siege of Lille by the French in 1667, 'the sedentary cannoneers' gallantly disposed of 46,000 pounds of powder in launching projectiles at the French. Several of their number were killed and 36 were wounded.

"Then Lille became a French city, but the sedentary cannoneers continued to exist.

'The brotherhood was administered by a high constable and sub-constables. The winner of the gunnery competition each year was called the 'king of good right.' Other officers were color bearers, drummers, fife players and a cannoneer's clown, a jester charged with distracting his confreres and amusing the public.

"Tradition continued. In 1748, upon initiation of a new high constable, William Durand, they wore blue uniforms with red ornaments. There was a banquet in the large room of their home. All cannoneers were invited who had participated in the morning parade. It is noted that they were advised 'not to hold indecent discourse at table nor transport from the banquet room either bottles or other things through either door or windows.' A fine of 48 patars was fixed for the delinquents.

"On one occasion in 1684, after a banquet following the firing of the cannon, the brotherhood dispensed 9 pounds for a lost silver fork and eleven pounds for broken window panes.

"A dinner in 1760 lists: six tureens of onion soup, six platters of herring, five platters of cod, a salmon, five platters of ray, six platters of eel, five platters of pike with white sauce, one milk fed pig, roasted, five salad bowls with tartar sauce, four pounds of cheese, three pounds of butter.

"Joy apparently reigned on most of these festive occasions for we find a regulation which prescribes that any cannoneer found drunk or in an ignominious condition would be punished by a fine and conducted from the house.

"While passing through Lille in 1803, Napoleon interested himself in the sedentary cannoneers and reorganized them by decrees, giving them a national home and two pieces of artillery appropriately engraved.

"In 1810, Napoleon again passing through Lille, decorated the commander, Captain Ovigneur, with the cross of the Legion of Honor for the entire organization.

"In 1812 and 1813 they received stands of colors for gallantry in defense of the citadel. In 1813 their strength was increased to 137 men per company.

"In 1815 they were raised from 2 to 4 companies and given a band.

"In 1852 after having been temporarily disbanded by decree they were reconstituted into 5 companies totalling 500 men.

"During the Franco-Prussian War they garrisoned Lille. Their effective strength was increased to 833.

"In 1875 their equipment was modernized.

"In 1896 they were reorganized and brought to a strength of 18 officers and 524 men. The age limit was fixed as follows: Field officers—65, company officers—60, enlisted men—50.

"In 1914 they were called to active service and furnished detachments for different forts. At the close of the war only 2 officers and 18 men remained at the home station.

"After some litigation with the city of Lille over their properties and rights in which the sedentary cannoneers were supported by public opinion and backed by the sentiments of Marshal Franchet d'Esperey and other notable soldiers, the organization was revivified and its legal status reestablished.

"The latest regulations governing their conduct, training, duties, etc., was published in 1936.

"It is the most ancient formation of French artillery and probably in the world."

Santa Barbara in the Drill Regs

A translation from the December 6, 1937, issue of *Le Forze Armate*, Italy, gives us:

"The earliest mention of Santa Barbara as patron saint of artillerymen,

according to Father Alberto Guglielmotti (Military and Naval dictionary), occurs in an ordinance of Dec. 14, 1529 to the citizen-militia of Florence. The ordinances of Charles V, issued around 1554 and designated for the artillery schools of Burgos and Sicily, prescribed, among other rules, that 'upon introducing the ball into the barrel, the artilleryman shall make the sign of the Cross on the mouth of the piece and plead Santa Barbara's assistance.' Even the 'Strenuous Zaccaria Schiavina,' chief of mortars and artillery captain of Venice, in his Treatise and Doctrine of Artillerymen admonishes that, in exercising the profession of artilleryman 'it is primarily necessary to fear Almighty God and to love and reverence Santa Barbara.'

"Luigi Colliado, XVI century writer and Chief of Engineers of His Catholic Majesty's Royal Army in Italy, in his 'Practical Manual of Artillery' advises disciples: '. . . when you put your fire to the artillery cry out the name of the glorious martyr Santa Barbara, protector of artillerymen.' The same book also contains regulations for 'a company and congregation of artillerymen.' Anecdote of interest on the subject is also found in 'Selected documents in dialogue to student artillerymen' of Giacomo Marcari, Vicentine nobleman, Captain and Master of Artillerymen (1596). Camillo Albertini narrates that in 1574 Gregory XIII founded at Ancona a 'School of Artillerymen under the patronage of Santa Barbara.'

"Since we have set out to quote authors we may also recall Costantino Maes who tells us that in Rome, through the work of Cardinal Pietre Aldobrandine, there was founded in 1594 a 'Company of Artillery Gentry of Castel Sant'Angelo' with a chapel dedicated to Santa Barbara in the Transpentina church, in the Bergo district (Rome).

"At Genoa the veneration of the Saint was practiced as far back as the XIV century. At Palermo, in Alloro street, there still exists a church dedicated to Santa Barbara. In ancient days in the latter city there flourished an academy of men of letters called 'Accesi e Riaccesi' under the patronage of the Virgin of Nicomedia. The writer Marchese di Villabianca describes to us the pompous procession held in the XVI century on every anniversary of Santa Barbara: '. . . The artillerymen and cadets led the parade in battle formation, gallant all in regal garb with beating drums and flowing banner. . . .' The historian Di Giovanni also recounts how '. . . The artillerymen sally forth on the day of this Saint with shields, pikes, arquebuses and other arms or fighting instruments, parading and shooting about the city, with sleeves embroided in silver, gold, coral and pearl. . . .' At Venice in the church of Santa Barbara where an altar was erected in 1509 to honor the Saint, there was founded in 1521 a 'School of Artillerymen of Santa Barbara.' Another school was founded in 1636 in Ferrara by Marchese di Bagno, General at Arms.

"The cult of this Saint has been perpetuated to present times. This Saint is also venerated as patron of the harvest season and is evoked during tempests. In the Veneto region the people exclaim:

"Santa Barbara benedeta
Guardame dal ton a da la sacta.

(Blessed Santa Barbara, shield me from the lightning and the thunder.)

"In Piedmont and in Genoa the same saying is heard in the respective dialectical form.

"Of common knowledge is the fact that the Nicomedose Martyr inspired a great number of works of art. In the magnificent painting of Palma il Vecchio (Venice, church of S. Maria Formosa) she is figured in the regal

opulence of the Venetian Dogaressa—a luminous, vigorous and plastic figure. The figuration of this Saint by Botticelli (Lucca, Pinacotaca), though less beautiful, is very graceful, with oval face, slender figure and delicate hands; less womanly but holier. Lithe like all the youthful feminine images by Botticelli, the Saint appears endowed with rhythmic movement, suggesting a figure of the ancient dance. Domenichine's Santa Barbara (Rome, quadroria Capitalina), on the other hand, is a singular work. The artist, fired with Michelangelesque spirit, gives us a strong and proud figure, but flabby of flesh and over exaggerated in mood of inspiration, more the image of a robust nurse than of a mystic creature. That of Vivarini (Venice, Royal Academy of Arts) has the dull face of a buxom peasant girl. Pinturicchio painted some episodes of the life of Santa Barbara in the frescos of the Borgia Hall in the Vatican at the time of Pope Alexander VI. These exemplars also show that the artist was an instinctive colorist, loving ornamental design. More fanciful and copious than Pinturicchio, the Venetian Lorenzo Lotto has left us some mural paintings in the church of S. Michele at Trescorre in the Bergamasco region.

"In his admirable work 'La Madonna di S. Sisto' (Dresden, Royal Picture Gallery), the divine Raffael artfully combined the purity of maidenhood and the sweet serenity of martyrdom. We recall Scaramuzza's figuration of the Saint with one arm stretched out to a group of men around a cannon; also Siena's Matteo di Giovanni pictured her in a painting to be seen in S. Domenico's church in Siena. Luca Carnac, in a painting of the Dresden gallery, Cavalier d'Arpino, in a picture of the Transpentina church in Rome, Marco da Oggione, pupil of Leonardo da Vinci, Cesimo Rosselli, Moreto di Brescia, Colomano Beszedes, also painted Santa Barbara.

"Among these many works, let us recall the statue that is admired at Ravello, a rare piece of the tenth century; the fine work of Luca della Robbia, in the tabernacle of Fonticino at Florence and the beautiful medal coined at Venice to commemorate the restoration of the Artillery School (1508) at the time of the Doge Marine Grimani."

And there, for the benefit of the ritualists who may wish to devise the passwords and the degrees for the Order, the Centurions, the Roll, the Cordon, or the Cannoneers of Santa Barbara—whatever seems most appropriate—is material of as ancient usage, for the brotherhood, as one might ask.

Certainly, the history of this unique feeling for comradeship within the arm is entwined with the distant recollection of cannon blasts on many fields, with noble associations, and with the masterpieces of great artists.

Hq Bty C Tn 3d Bn 182d FA (Captain Leonard J. Harding) Detroit, Mich., compiled a 100-percent attendance record for the four weeks ending October 17 in the face of great difficulties. Many members of the outfit are in the automotive industry, geared to night and day shifts, which alternate every month. But every man showed up for drill.

Fort Sill Baseball Champions

Winning 17 games out of 20, the First Field Artillery baseball team, coached by Captain John M. Hamilton, won the hotly contested Fort Sill championship for 1938, making the third consecutive pennant win for the First Field Artillery. Eight of the twenty-one players on the squad played on the 1936 and the 1937 pennant-winning teams.

Pvt. 1st Class Marvin Hoover, who did the relief pitching for the First Field throughout the season, is credited with being the best relief pitcher that has ever played at Fort Sill.

The First Field Artillery is commanded by Colonel Marshall G. Randol. The League final standing follows:

Team	*Won*	*Lost*	*Pct.*
1st F.A.	17	3	.850
18th F.A.	16	4	.800
29th Inf., 3rd Bn.	10	9	.526
Colored Detachment, F.A.S.	9	11	.450
77th F.A., 1st Bn.	6	12	.333
Quartermaster Corps	0	19	.000

Rear row, standing, left to right: Colonel Marshall Randol, Commanding Officer; Pfc. Hoover, Btry "B"; Corp. Meyers, 2nd C. Tn.; Pvt. Maddox, Hq. Btry; Pfc. Shelton, Hq. Btry, 1st Bn.; Corp. Carroll, Btry "D"; Sgt. Lawrence, Hq. Btry, 1st Bn.; Pfc. Spalding, Hq. Btry, 1st Bn.; Captain J. M. Hamilton, Coach. Second row, kneeling: St. Sgt. Hawkins, Hq. Btry, 1st Bn.; Corp. Howard, Service Btry; Corp. Bisaga, Band; Pvt. Cagle, Hq. Btry, 1st Bn.; Pvt. Blalock, Btry "E"; Pvt. Bench, Btry "E"; Pfc. Martin, Btry "A"; Pvt. Newton, 1st C. Tn.; Pfc. Hicks, Btry "B," Trainer. Front row: Pvt. Campbell, Btry "A"; Pfc. Doughtery, Btry "D"; Pvt. Strothman, Hq. Btry; Dotts, Mascot; Pfc. Williams, Btry "A"; Corp. Ammons, Btry "A."

Ohio's 135th Field Artillery was Honor Roll regiment in August attendance, followed in trace by the 136th FA and the 134th FA.

Radio Maintenance In The 68th Field Artillery (Mecz)

BY CAPTAIN NEWTON W. JONES, FA

ONE of the most difficult problems in the Army is the maintenance of our fighting equipment. The problem has long been recognized as a matter of prime importance in respect to the guns, mortars, rifles, pistols, fire control and leather equipment of the Field Artillery, and within the last two decades the importance of motor vehicle maintenance has come to the front and now occupies a position of first priority in all motor or mechanized organizations. Likewise the problem of maintenance of communication equipment has become an increasingly important function and with the mechanized field artillery it is vital.

With the mechanized regiment, the old adage "To march, shoot and communicate" has been changed to "To march, communicate and shoot," giving communication its proper place in the triumvirate. All the usual means of communication—wire, radio, visual, and messengers—are available, but the speed and radius of action of the Mechanized Force has greatly altered their normal employment. The rapid movement, prompt delivery of fire, and frequent extended displacements required from artillery supporting mechanized cavalry place exceptional demands on the communication system. Radio, because it ideally fulfills the speed and range requirements necessary, is accepted as our primary method of communication. All other means of communication are supplementary and their use without radio would materially limit the effective support of mechanized cavalry. The dependence thus placed on radio as a means of communication makes it absolutely necessary that all radio sets be kept in excellent working condition at all times.

At the present time this battalion has the following listed radio sets, with more sets expected within the next two years:

2 SCR 193-A
3 SCR 193
7 SCR 209-A
9 SCR 209
10 SCR 199
3 SCR 210 Receivers
10 SCR 194 Pack Sets.

It was soon recognized that the maintenance of these sets was a considerable task; so a Radio Maintenance Section, consisting of one radio sergeant and one radio technician was initially organized. At this time all vehicular sets were installed under the supervision of the Battalion Radio Officer. As a result, these men became thoroughly familiar with all the details of installation and repair. As more sets were received this crew was increased to a staff sergeant, and two radio technicians. It has been necessary to augment this crew by one additional man, selected from among the operators for his special knowledge and mechanical ability. No records were kept at first, dependence being placed on the operator to report any failures of his set. This system, in general, worked in a semisatisfactory manner, but some sets would not be in operation Monday mornings when they were invariably needed.

After considerable study this was found to be, generally, the fault of the last operator for neglecting to report some trouble with his set to the Radio Maintenance Shop, or to a lack of records in the shop as to what sets needed repair. Another common cause for a set not working was frequently found to be due to the storage battery having lost its charge during periods of inactivity, or run down during the last operation. Still another cause for malfunctioning was that vehicles sent to the Motor Maintenance Shop for ignition work were frequently returned without the motor mechanic having securely replaced the shielding and bonding so necessary to prevent motor noises from interfering with the operation of the radio set. To correct the above faults, as far as possible, the following system of inspection and maintenance has been gradually developed.

Records

In order to provide a record of the various repairs, adjustments and replacements of parts necessary on each set, and further, to secure data on the life of tubes, batteries, condensers, generators and coils, the following records have been found necessary:

Trip Ticket
Radio Set—Service Record
Schedule of Radio Maintenance
Technical Inspection Report.

a. **Trip Ticket:** This is a basic record prepared by each radio operator at the completion of each period of operation. On it is recorded the time of transmission, reception, specific gravity of the storage battery, and a list of items to be checked for their satisfactory functioning. Under *remarks* is noted any failure or malfunctioning of the set.

RADIO OPERATOR'S TRIP TICKET

Vehicle..... Set..... Time.....
Time out..... Time in.....
Transmission Time..... Receiving Time.....
Inspections:
Transmitter .....
Receiver .....
Headsets .....
Microphones .....
Tubes .....
Relay .....
Adjustments .....
Repairs .....
Battery Tests: Storage..... Dry.....
Remarks .....
.....
.....
(Operator's Signature)

.....
(Signature of Officer or NCO in charge of vehicle)

NOTE: This sheet will be turned in with the Operator's Log Sheet to the Battery Noncommissioned Officer in charge of radio on return from each trip.

RADIO MAINTENANCE SCHEDULE

Vehicle No.		06	79		85
Radio Set		209	199	194	245
Battery	Date	9/ 1/38	9/ 1/38	8/29/38	9/ 1/38
Check	Reading	1220	1210		1240
Bn. Check	Last Made	8/26/38	8/27/38	8/29/38	9/ 3/38
Bn. Check	Next Due	9/26/38	9/27/38	9/29/38	10/ 3/38
Brig. Check	Last Made	1/ 9/38	7/20/38	8/21/38	8/26/38
Brig. Check	Next Due	10/ 9/38	8/20/38	9/21/38	9/26/38

b. **Radio Set Service Record:** This is a book made up in loose leaf form for each radio set in this battalion. It shows the basic data as to make, manufacture, cost, type of transmitter, generator, dynometer, frequency bands, operators, transfers, and other pertinent data.

In addition to the above there are two main sections, one, headed *Maintenance*, shows the data and date of all inspections, repairs and replacements made; the other section, headed *Operation*, shows by day and month the time of transmission, reception, and the total hours of each for every month. This is the only permanent record kept. It is analogous to a Motor Vehicle Book or Gun Book.

c. **Schedule of Radio Maintenance:** This is a large blackboard in the Battalion Radio Maintenance Shop, ruled and lettered as shown above. During extended field duty, a similar form is made up on paper of convenient size. This blackboard gives the Battalion Communication Officer a lot of ready information as to the status of maintenance and particularly the status of the vehicular storage battery.

d. **Technical Inspection Report:** This is a mimeographed sheet prepared for use in checking practically any radio set, and making notes of adjustments or repairs necessary, and also indicating that the repairs have been made or work orders prepared. This form has undergone frequent revision but is believed to be about as simple now as can be devised and covers all necessary operations. The following is a sample of this form:

RADIO TECHNICAL INSPECTION REPORT

Scout Car No..... Organization .....

Radio Inspection

Type Set..... Trans. No.....
Rec. No..... Date.....
Check V if item is O.K.
Check X if shop repairs are necessary and explain under remarks.
Check O.K. when repairs and adjustments have been made.

1. Battery.
..... Cleanliness of battery, box, cables and terminals.
..... Properly secured to prevent movement.
..... Depth of battery water (½" over plates).
..... Cables insulated, soldered, uncorroded.
..... Age of battery in months, ...
Date of last charge, ...
..... Specific gravity of each cell, ...
..... Charging rate of generator at "cut-in" point (80-35 for small battery, 50 for large).

2. Radio Receiver.
..... External connections tight, ...
Internal, ...

..... Calibration chart.
..... Switches — clean and tight, unbroken knobs.
..... Soldered connections properly made.
..... Headset, tubes, fuzes.
..... General condition (cleanliness).

3. Radio Transmitter.
..... External connections tight, ... Internal, ...
..... Meters Operating.
..... Switches, clean, tight and unbroken knobs.
..... Soldering connections properly made.
..... Microphones, key, tubes, fuzes.
..... Normal plate current. (V equal 180-200 ma), (T equal 300 ma), (CW equal 300 ma).
..... General condition (cleanliness).
..... Bias Batteries.

4. Miscellaneous.
..... Control box condition, warning light for SCR 193.
..... Antenna switching relay: general condition, operation, mounting.
..... Shielding and bonding: general condition, complete, secure.
..... Mast Base, Bracket Base: Lead-ins and antenna: clean, secure.
..... Auxiliary Equipment: antenna, fuzes, tubes, microphones, headsets, coils and key.
..... Dynameters: general condition, commutators, brushes, relay, oiling.
..... Operation of set: CW., Tone, Voice.

REMARKS .....

.....

Checked by .....

Inspections

a. Operator: Prior to the start of any operation the operator is required to inspect his set and equipment for the following items: Broken cords, loose connections, defective plugs, antennas, headsets, spare tubes, fuses codes, log sheets, message blanks, and a trip ticket. The set is then turned on and checked in to the Battalion Base Station or Net Control Station to check its operation before the car leaves the motor park. At the completion of any operation the set is again checked, including the storage battery charge, and the data noted on a Trip Ticket.

b. Noncommissioned officer in charge of the car: The senior noncommissioned officer in the car is required to check the operator for completeness of his equipment, call signs, and nets in which he is supposed to operate. At the completion of any operation the NCO checks to make sure that the operator has checked his set as required by the Trip Ticket.

c. Storage Battery Check: Once each week all vehicular storage batteries in the battalion are checked for their Hydrometer Reading, and any battery found under 1225 sg is put on charge at once. In order to accomplish this, long leads have been made up from the charging set so that they can be connected to the battery without removing it from the vehicle.

d. Once each month the Battalion Radio Maintenance Section makes a detailed technical inspection of all sets in the battalion and records the results of the inspection on the Radio Technical Inspection Report. All repairs, replacements, and adjustments found necessary are made at this time. These reports are turned in to the Battalion Communication Officer for check each month and are then filed until the next month's reports come in, when they are destroyed. Any repairs or adjustments that can not be made by the Battalion Radio Section are reported to the Brigade Radio Main-

tenance Shop on a work order signed by the Battalion Communication Officer.

e. Once every three months all vehicular radio sets in the Battalion are sent to the Brigade Radio Maintenance Shop, on Work Order for a complete check. Any repairs, replacements, or adjustments necessary are made at this time.

Operation

Operation: At the completion of any period of operation all operators check their sets according to the TRIP TICKET and the noncommissioned officer or officer in charge of the car signs this ticket. It is then turned over to the Battery Radio Sergeant, in gun batteries, and to the Battalion Radio Maintenance, in the Headquarters Battery. In case anything is reported wrong with any set the TRIP TICKET is sent to the Battalion Radio Maintenance Section at once. Generally the car containing the radio set is taken to the Battalion Radio Maintenance with the TRIP TICKET accompanied by the operator. If the vehicle cannot be sent with the trip ticket due to other vehicular trouble or because the Battalion Radio Maintenance is unable to work on the set at this time, the car is held on call and sent to the Battalion Radio Maintenance, when called for by the Chief of the Battalion Radio Maintenance, who has decided, in consultation with the Communication Officer, the schedule of repair work. Usually this is a very simple matter but on occasions it has called for major decisions, involving the changing of sets from one vehicle to another and the organization of emergency nets in order to function. In case the storage battery is down, it is put on charge at once. On completion of the repair work necessary the TRIP TICKET is returned to the organization where the data as to operation is recorded in the RADIO SET SERVICE RECORD. By handling the matter in this way the TRIP TICKET serves as a work order on the Battalion Radio Maintenance, and keeps them informed at all times as to the status of their work. These TRIP TICKETS are kept in the organization until the end of the month when they are checked with the RADIO SET-SERVICE RECORD and destroyed. The data for transmission and reception is taken from the operator's log sheet and is reasonably correct. Transmission time is generally about one-twentieth of reception time. The RADIO SET-SERVICE RECORD accompanies the set whenever it is sent to the Battalion Radio Maintenance, and any checks, repairs, replacements, or adjustments made are noted in the SERVICE RECORD under Maintenance.

When a radio set fails to function in the field the vehicle in which it is installed is promptly taken to the Battalion Command Post where one of the radio technicians repairs the set if possible, or takes the car to the Brigade Radio Maintenance. In planning the radio nets one vehicle is generally held at the Battalion Command Post to act as a replacement for any set that fails to function. Any failure or malfunctioning of any set noted by the NCS operator is checked at once and the reserve car dispatched to act as a replacement.

The Battalion Radio Maintenance Section makes practically all repairs and adjustments to the radio sets in the battalion to include the storage battery, except the initial installations. No work is done on the ignition system or shielding of the vehicles. This is done by the Motor Maintenance Section. The Battalion Radio Maintenance Section is also charged with the keeping of the RADIO SET-SERVICE RECORDS for Headquarters Battery.

When an inspection indicates that repair parts are not available or the repair is not one that the Battalion Radio Maintenance is authorized to make, the set is sent to the Brigade Radio Maintenance with a WORK ORDER signed by the Battalion Communication Officer. The Brigade Radio Maintenance is a Signal Corps detachment and occupies about the same place in radio maintenance as the Quartermaster or Ordnance shops do in motor maintenance. They keep a supply of spare parts, supervise the initial installation of sets, align condensers, and do any rewiring or extensive repair work.

Prior to the start of any tactical exercise, all sets in the Battalion are called into the Battalion Radio Maintenance to have their frequencies checked. This measure has been found necessary to insure "on frequency operation." It also greatly facilitates the checking in and out of the various nets.

Cooperation Between Sections

As all ignition work is done by the Ordnance, or the Battalion Motor Maintenance Section, and due to the fact that unless all work is perfect, engine noise results in the radio set, all cars are sent from the Battalion Motor Maintenance to the Battalion Radio Maintenance for check of the ignition work before they are released to their organizations. During field exercises one of the radio technicians accompanies the Battalion Motor Maintenance Section.

General

With a system of combined training for all radio operators in the battalion under the direction of the Battalion Communication Officer, and the use of the above-described system of radio maintenance, this battalion has had dependable radio communication whether on the march or while engaged in tactical exercises. The details of this system will probably undergo slight changes as more experience is gained with newer type sets and vehicles, but is believed that the basic plan of this system is essentially sound, and further, that some such plan is necessary.

While it may appear to the reader that many inspections and records are unnecessary, experience has demonstrated that they are a necessary and vital part of any system. The results obtained are in direct proportion to the thoroughness of the inspections and the completeness of the records.

Only field artillerymen among newly elected officers of the Military Order of the World War are, appropriately enough, the two top ones: Colonel Edward N. Wentworth and Major E. S. Bettelsheim, Commander-in-Chief and Adjutant General, respectively; both FA-Res; both members of this Association.

●

Corporal William T. Rieppel took the parade of 1st Bn 9th FA at Fort Lewis, Wash., recently, and received from the brigade commander, Brig. Gen. T. E. Merrill, the Purple Heart, for wounds sustained at St. Mihiel.

Forty Years Ago

BY 1ST LIEUT. JAMES F. DANSER, 157TH FA

IN looking through the *Drill Regulations For Light Artillery*—United States Army, 1896,* I was impressed and entertained by the many changes, important and otherwise, which have taken place since that manual was the basic law of the artillery.

Did you know that a little more than forty years ago the extreme effective range of light artillery was 4,000 yards; shrapnel was the only fuzed projectile the artillery possessed; side arms for artillery enlisted personnel were saber, pistol, and knife; and indirect laying was yet a thing of the future?

Light artillery in those days was so designated because it could be moved rapidly about in the field and not because of its caliber. The standard light artillery piece was a 3.2-inch gun while the heavy artillery weapon was a 3.6-inch gun, a difference of only .4 inch in diameter. Medium artillery did not exist.

There were three types of light artillery: Horse—the cannoneers were mounted; field—the cannoneers marched alongside of the caissons or rode on the gun chest; and mountain—the guns were dismantled and mounted on pack animals in a manner similar to the present pack artillery. Light artillery also included the Gatling and Gardner machine guns in batteries of various calibers which likewise belonged to one of the three types; horse, field, and mountain.

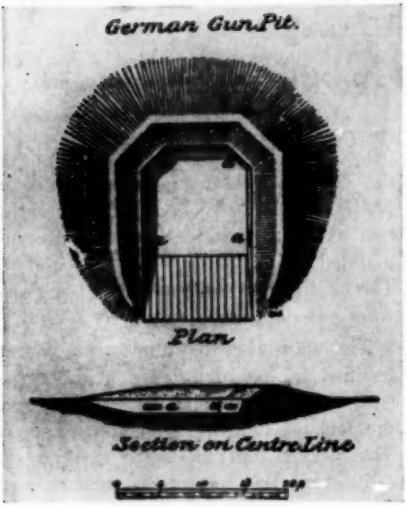
Light artillery was either corps or division artillery, corps artillery comprised two or more battalions under the command of a colonel. Division artillery consisted of one battalion of two to four batteries and was commanded by a major even as today. The artillery regiment and brigade were yet unborn.

The staff of a battalion commander testifies to the abundance of administrative duties during peacetime and the lack of tactical duties during war. The major had as his executive an adjutant who was a lieutenant and whose duties were mostly of a training or a ceremonial nature. A sergeant major handled the paper work. Since the major was responsible officer for the property in his battalion his staff included a quartermaster sergeant who handled the details of property and supply. The staff was rounded off with a chief trumpeter whose duties and purpose will be more fully described elsewhere.

The corps artillery commander's staff was not much more impressive than that of his subordinate field officer. He possessed, in addition to the officers on the major's staff, a quartermaster and commissary officer, who by virtue of his responsibility ranked a lieutenantcy.

The trumpeter casually mentioned before cannot be so lightly dismissed. Indeed, everyone of importance in the army of '96 rated at least one trumpet to announce his presence. A captain of a battery had two; a major bent on instructing his battalion was accompanied "by a trumpeter who went wherever his presence was required." Trumpeters really earned their pay. Their duties entailed acting as pub-

*War Department, Washington, February 4, 1896. Daniel S. Lamont, Secretary of War.



licity men for their commanding officers and keeping the reviewing officer awake during the formal review. The latter was accomplished by the trumpeter marching at the head of his unit until he was sixty yards from the reviewing officer when he began to sound. Upon passing the officer, and without missing a note, he fell out and took a post directly in front of the reviewer, whence he continued to sound until his entire unit had passed.

Lest anyone should imagine that I have been ridiculing the trumpeter and his duties I hasten to point out with all due respect that there were only three means of communication in the field artillery of that day: Voice, messenger, and trumpet. And the most used of these was the trumpet.

The infantry-artillery team was even closer in those days than it is today. In fact, a great deal of doubt exists in my mind as to the supporter and the supportee when those two arms got together during a battle. It was the chief duty of the artillery to "act in conjunction with the other arms; its mission is to prepare and support".... the infantry. However, since the artillery was short of range and hand-to-hand fighting was the order of the day, DRILL REGULATIONS state that the artillery "should be protected on its flanks at all times by infantry and cavalry."

The artillery was *not* to shoot over the heads of friendly troops if such action could possibly be avoided. Its purpose was to place a concerted barrage on, and neutralize all, the enemy batteries before the attack began. Success was assured the infantry when the enemy batteries were wiped out. Since the maximum range was 4,000 yards I assume that both sides were at all times aware of the location of enemy batteries. In attacking and retreating the artillery was to advance and fall back in line with the infantry.

Field conditions were practically the reverse of what they are today. In choosing the position the main points to be sought for were: "A clear open range to the front and flanks . . . cover for cannoneers, horses, materiel, must be subordinated to efficiency of fire . . . a gradual slope to the front of about one on one hundred feet is suitable to good fire effect."

Stony fields must be avoided in placing batteries in position and close proximity to stone fences was to be avoided because the percussion-type projectile then in use was more likely to explode when it hit. Everything was just fine if you could locate your battery in a soft meadow, a newly plowed field, sunken road, or on the bank of a canal, which could be used as a shell catcher for the projectiles falling short. Percussion shells rarely exploded unless they hit a solid object.

They had range-finder instruments and placed considerable faith in them, stating that: "The range is found either by trial shots or by means of the range-finder. The latter MUST be

used whenever time and circumstances permit." There was no such thing as bracket fire, every round being fired in hopes of a direct hit. Fire for effect was started when a trial shot luckily connected with the target. Firing angles, offsets, small and large T, *K*-transfers, were all things of the future and indirect fire was tabooed as a waste of ammunition.

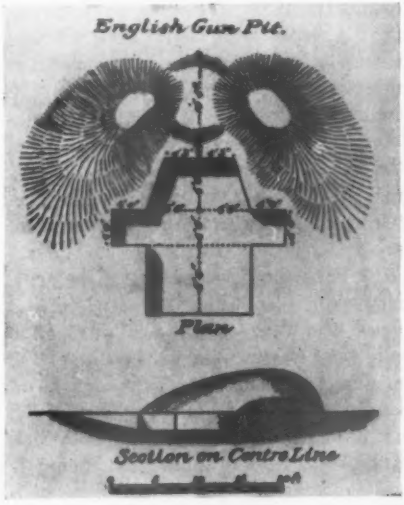
The laying of a gun on a target was accomplished in a manner similar to that used in modern practice when direct laying is employed against tanks. Upon occupation of a position the battery commander used his range-finder to determine the range to all the targets within reach of effective fire which was from 500 to 4,000 yards. Then having chosen or having been commanded to fire on a certain target, he ordered the gunner of one of the pieces to set the range-finder range off on his breech sight. The breech sight was carried in a pouch attached to the gunner's pistol belt, and was similar to our rifle sight (rear). The gunner set off the range and screwed the sight into a hole in the breech of the gun. He then sighted along the barrel, tapping the right or left side of the trail, which was moved accordingly until the gun pointed at the target, and then he depressed or elevated the barrel by means of a crank until the line—breech sight, muzzle, target, showed that the proper range had been attained.

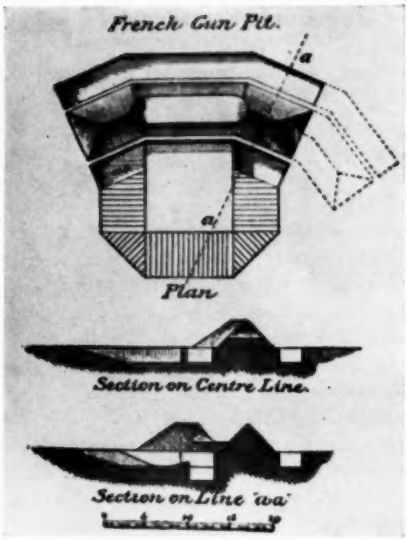
All ammunition was separate loading. There were three types of projectiles; shrapnel, percussion, and canister. Percussion was the most effective against massed troops and materiel. Direct hits were necessary on guns, limbers, and earthworks, and the effect was due to "percussion, penetration, and explosive force of the bursting charge. Against men and horses . . . its effect is produced by splinters."

The effect of shrapnel was due to penetration of its bullets and splinters. However, this penetration was so small that shrapnel could be used against horses and men only. It had a combination fuze and could be made to burst independently of the ground in front of the target. Because of this fact it was recommended for use against an enemy behind cover and safe from percussion shell. By causing the burst to occur in the air the shrapnel's bullet and splinter spray would get behind the mask.

Canister was the weak sister of the artillery projectiles. It was used only at short ranges and on the defensive. Its: ". . . effect is largely diminished when the ground in front of the gun is rough or soft . . . or brush covered."

During combat one of the battalion commander's duties was fire-direction. He prescribed the method for finding the range (range-finder or trial shot), designated the target or targets for each battery, prescribed the projectile to be





used and the rate and order of fire, and then turned the baby over to his battery commanders.

The battery commander laid and directed the fire of the battery as prescribed by the battalion commander.

The order of fire was generally by piece. Salvoes were used where it was difficult to observe a single shot, or to take advantage of targets of opportunity. Pieces were only fired at will when the enemy were so close that something drastic had to be done. In connection with the latter this regulation strikes me as interesting: "When the enemy penetrate a battery its cannoneers should place themselves between the gun wheels and protect themselves with their revolvers."

Perhaps the greatest change in artillery principles which occurred during the World War was the breaking of the rule so clearly stated in the 1896 manual: "Ineffective cannonades at long distances and SHELLING WOODS or other localities not POSITIVELY KNOWN to be occupied by enemy is not permitted." Today woods which might serve as battery positions or enemy concentration points are definitely artillery targets.

Camouflage was unknown. However, use of cover for the field artillery was beginning to come into vogue. Cover was either artificial or natural. Natural cover included soft meadows, marshes, heights, slight unevenness, ruts, low dikes, ledges of earth, hollow ways, and the always acceptable reverse slope of a hill. Artificial cover included pits and intrenchments.

At the time the DRILL REGULATIONS were published the United States had no artificial cover system. However, descriptions and illustrations of the Austrian, English, French, German, and Russian gun pits were given. The pits were a poor means of coverage at best, for while they provided a fair amount against hostile fire, they made conspicuous targets; inhibited the action of the gun personnel; had a very limited application in an offensive; were nearly always impossible to drain; and constituted a serious drawback in the case of a sudden retreat.

From the attempt to conceal these parapets and pits arose the science of camouflage. The DRILL REGULATIONS declare that: "In order to conceal the parapets, cover the fresh earth with boughs, sod, or top soil of the PREVAILING OR SURROUNDING COLOR." Thus, though the army still wore bright uniforms and stood out like flashy bluejays against the somber background of the war-torn fields, it was at last beginning to understand the fundamental property of camouflage as evidenced by the statement the concealing material must be of the prevailing color.

Incidentally, the machine gun, mentioned before, was a new weapon at the time the manual was written. It was stated that: ". . . . The role of the machine gun on the battlefield is

undetermined . . . but it is probable that it could be most usefully employed with cavalry. . . ." It further states that the machine guns are of no use offensively and winds up by cautioning against firing them too much, because of the great expenditure of ammunition.

The DRILL REGULATIONS close with a list of eighty-odd trumpet calls. Today only forty-seven calls are listed, which to me is a sure indication that military science advances ever on to a higher plane. Perhaps forty years from now the trumpet will be non-existent.

SPECIAL NOTICE

U. S. FIELD ARTILLERY ASSOCIATION PRIZE ESSAY, 1939

A PRIZE of $100 is offered by the United States Field Artillery Association for the best essay submitted by any Field Artillery officer of the Regular Army, National Guard, or Reserve Corps, on any subject of current interest pertaining to the Field Artillery.

The following rules will govern the *essay* competition:

(1) The award of prize to be made by a committee of three members to be nominated by the President of the Field Artillery Association, voting by ballot and without knowledge of the competitor's names or of each other's vote.

(2) Each competitor shall send his essay to the Secretary-Treasurer of the Association in a sealed envelope marked "Prize Essay Contest." The name of the writer shall not appear on the essay, but instead thereof a motto. Accompanying the essay, a separate sealed envelope will be sent to the Secretary-Treasurer, with the motto on the outside, and the writer's name and motto inside. This envelope will not be opened until after the decision of the Committee.

(3) Essays must be received on or before January 1, 1939. Announcement of award will be made as soon as practicable after that date.

(4) The essay awarded the "United States Field Artillery Association Prize" will be published in the FIELD ARTILLERY JOURNAL as soon as practicable. Essays not awarded the prize may be accepted for publication in the FIELD ARTILLERY JOURNAL at the discretion of the editor and the writers of such articles shall be compensated at the established rate for articles not submitted in competition.

(5) Essays should be limited to 8,000 words, but shorter articles will receive equal consideration.

(6) All essays must be typewritten, double spaced, and submitted in triplicate.

The requirement of a thesis by students of the Regular Course at the Field Artillery School having been deleted from the curriculum, the award of a prize for the best thesis submitted is correspondingly withdrawn by the Association.

Reviews

COMMAND AND GENERAL STAFF SCHOOL QUARTERLY.

The September number of this valuable periodical appears in new dress, and dimensions of 9½ by 12¼ inches, which affords considerable freedom in illustration, particularly for maps.

The entire issue is impressive, not alone for beauty of format, and excellence in typography, but for the scope and authority of its content.

Here is perhaps the best and practically only complete summary of the current military literature of the world. No one contemplating a thesis, for instance, should be without the Quarterly, for its valuable references to the studies made by others on a subject, and the section on "Military News Around the World," consisting of 17 large and profusely illustrated pages, is the best and most accurate keeper-abreaster yet published.

One cannot even skip through this issue without being convinced that an officer cannot afford to be without the $1 a year subscription to the Quarterly.

●

TOMORROW'S WAR, by Stephen Possony. William Hodge and Co, Ltd., London. 8 shillings, sixpence.

Mr. Possony attempts to prove that, in the words of the jacket blurb, "the national self-sufficiency for which Hitler and Mussolini are making such sacrifices is a vain illusion and will lead to national suicide in the event of a struggle. He shows that the effect of bombardment is grossly exaggerated and that the best weapon is blockade." The author cites tables, extracts from other authorities, and plausible argument to support his thesis—and these in great profusion. It was thought that this would be an excellent volume for review by a War College student. The student approached read the book and asked, "Who is Mr. Possony?" We couldn't tell him. He also asked, "Is it true, as Mr. Possony infers, that Liddell-Hart is a military authority?" We couldn't tell him that, either. We gathered that neither the marshaling of so-called facts nor the argument made a tremendous impression on our reviewer. We have asked this reviewer to read another book, in order that laboratory controls can be established in his case. In the meantime we can only report that Mr. Possony's book is excellent reading and his reasoning perhaps clouded only by the indubitable fact that 1914-Germany was unable to wage a four-year war for lack of sufficient resources; nevertheless did; during the ensuing Hoch to Heil period appears to have shrugged off a good many of Mr. Possony's mathematics.

Hard to improve upon is drill attendance of Hq Btry C Tn 3d Bn and Btry E of 123d FA (Illinois), with 100 per cent. Hard enough is that of entire Third Battalion of the Regiment, with 98.6%. These were honor units and battalion of the state for August, 1938. The same battalion won honors for September, in which month Hq Btry 1st Bn, Hq Btry 3d Bn, and Btry E attained 100%.

Command Post Exercise

THE Command Post Exercise of the Field Artillery Group, held recently at 39 Whitehall Street, New York City, was attended by two hundred and forty-six Field Artillery officers of the nine regiments of the Field Artillery Group. The staff exercise was so prepared as to test the ability of the regimental and battalion staffs to function in a tactical situation as a part of a reenforced brigade.

The Field Artillery Group is composed of the following regiments of light, medium, and heavy artillery: 352d FA—Colonel Henry W. Boyce, FA-Res.; 391st FA—Colonel Robert P. Marshall, FA-Res.; 432d FA—Colonel Silas McBee, FA-Res.; 441st FA—Colonel A. C. B. McNevin, FA-Res.; 442d FA—Colonel E. C. O. Thomas, FA-Res.; 566th FA—Colonel Roger Merrill, FA-Res.; 570th FA—Colonel E. J. W. Proffitt, FA-Res.; 577th FA—Colonel Noel B. Fox, FA-Res.; and the 861st FA—Colonel Charles W. Piper, FA-Res., all located in the City of New York.

The instruction staff of the Group consists of the following Regular Army officers: Colonel John W. Downer, Executive, Colonel John M. McDowell, Lieutenant Colonel Alfred J. Betcher, Lieutenant Colonel William J. Jones and Major Joseph Kennedy, unit instructors and G-4, G-2, G-1, and G-3 respectively.

The following ode to the Command Post Exercise was written by Major Herman Vieweg, 577th F.A.

THE C. P. X.

Manhattan's sun sinks in the west,
The natives hurry home to rest
But, here and there, one might observe
The Field Artillery Reserve,
Who, faithfully, commence their treks,
Converging at the C. P. X.

Soon they assemble on some "hill
Near Pine Camp, Gettysburg, or Sill"
Or some strange area of the earth
Where graduates of Leavenworth
Have worked out problems to perplex
The victims of a C. P. X.

All evening long, in great profusion,
Problems appear which cause confusion,
And there is scarcely any one
Who manages to get his done.
The simplest matters seem complex,
Encountered at a C. P. X.

To start with, here's a situation
Which causes instant consternation;
The Blues see red, the Reds feel blue
The brass hats don't know what to do;
"*Required:* Field Order, with Annex."
They wish they'd skipped the C. P. X.

The Old Man and his Chief of Staff
Are hardly in a mood to laugh,
As frantically on maps they try
To locate "crossroads 84-Y."
And neither, yet, the truth suspects:
A misprint in the C. P. X.

S-3, a stickler for precision,
Insists on getting a decision;
He says he has to show the Colonel
Some obscure item in his Journal,
Which, clearly, in no way affects
The outcome of the C. P. X.

The S-4 is in bad condition,
He's short one round of ammunition,
And knows, unless he gets this clear,
He'll hear about it all next year.
Confused, he notes, records, and checks
Each item of the C. P. X.

Lieutenants struggle with deflections,
And ranges, which require corrections,
Which could be added—or subtracted.
They seem unusually distracted.
Their minds are on the other sex,
And not upon the C. P. X.

The majors vainly hunt for traces
Of batteries, not found in the places
Reported by their own C. O.'s.
They must be somewhere, they suppose.
Something has been designed to vex
Each one who's at the C. P. X.

Then, suddenly, the clock strikes TEN;
We know our jobs are done again.
Solutions have all been submitted
Essential data half omitted,
While most of us are nervous wrecks,
Departing from the C. P. X.

But not for long; In taverns near
'Midst sandwiches and steins of beer
We have an hour's relaxation
And seek, in earnest conversation
To learn if any one detects
The purpose of a C. P. X.

And, too, we have this consolation:
While we enjoy a real vacation,
Through torrid days and summer heat,
Our friends at Three-Nine Whitehall Street,
Will be immersed up to their necks
In papers from the C. P. X.

Autogiro Tested By 108th Field Artillery

The November number of The Pennsylvania Guardsman carries an interesting article by Captain Charles R. Gildart, FA, "A Pillion on Pegasus," describing a test of the Kellett Autogiro made by Colonel William A. March's 108th Field Artillery, Pennsylvania, in cooperation with Captain L. B. Ely, FA, and the author, who are instructors assigned to the regiment.

The Kellett company provided a giro and pilot, for use as a mobile OP during service practice, and in test as a reconnaissance vehicle. Captain Ely piloted the machine during one of the problems. Communication was tested both with issue telephone equipment and by voice from giro to guns. Lt. Harry S. Messec, 108th FA, a graduate of the Field Artillery School, conducted fire from the giro during two of the problems. The Third Battalion of the Regiment, commanded by Major James C. Rosborough (who also made a reconnaissance flight for positions) was the unit designated by Colonel March for the tests.

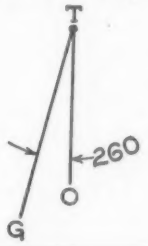
A WRIT

Conduct of Fire, Lateral, Small-T

A Solution

1. *a.* When the deflection error is not greater than ½ **s**, a burst whose deviation is on the side of the observing line toward the guns may be sensed short for range; a burst whose deviation is on the side of the observing line away from the guns may be sensed over for range. Bursts should be sensed by this rule only when they cannot be sensed on the target or on terrain.

b. When a target hit is obtained.
When a 2-mil deflection bracket is split.
When sensings of deflection over and deflection short are obtained at the same deflection setting.



2. $r/R = 30/48 = .6$. **s** $= 24/4.8 = 5$, **c** $= 6$, Fork $= 4$
Modified **s** $= 4/6 \times 5 = 3$.

3. $r/R = .8$, Mod. **s** $= 6$, Fork $= 8$.

Commands	Elev	Dev	Rn	Df	Remarks
No. 1, 1 Rd, Q	200	50 R	?		$50 \times .8 = 40$.
L 40	200	20 L	?		$r/R = 40/70 = .6$ $20 \times .6 = 12$
R 12	200	4 L	—		To get on line, $4 \times .6 = $ R 2 To stay on line, L 12. L 12 + R 2 = L 10
L 10	216	5 R	+		To get on line, $5 \times .6 = $ L 3 To stay on line, R 6. R 6 + L 3 = R 3
R 3	208	Line	—		To stay on line, L 3
L 3, 3 Rds	212	3 R	+	?	Range sensed by rule.
		4 R	+	?	
		3 R	+	?	Make ½-*F* elevation change
2 Rds	208	Line	+	+	Six rounds fired at mean elev of 210. Fork at 210 is 9
		4 L	—	?	2/12 × 9 = 1.5 210 — 1.5 = 208.5
R 3 or 2, 3 Rds	208.5				Deflection not yet correct so fire continued by series of 3 rounds.

Some Forward Observations

THE 1938 proxy card had some space left on one side, and so the active member were asked: "What article did you like best in recent JOURNALS?" We would be just as entertained to know which article was liked least, but didn't think that information appropriate for a postcard. Put it in a letter.

Anyhow, we hoped to get some ideas as to what the readers wanted, and we think we have. Of course, a great many failed to respond to the question, whether because they didn't notice it, weren't interested, didn't care to commit themselves, or couldn't remember—all of which are legitimate reasons. In the two-per cent zones we find, at one end of the scale, a flattering few who wrote in "All good." *Beyond* the opposite end, an erratic round which advised us to "Build up the JOURNAL." (Time out while the public-address system informs the audience that a secretary can only try to advance the interests of an association; the development takes place out in the field.) That round with the least deviation from the target was one speaking highly of an article with whose conclusions the signer had previously strongly dissented, —a beau geste of the most sweeping.

One, with the least deviation from the center of impact, read: "Colonel Lanza's articles. What would you do without him?" We'll cross that bridge when it slaps us in the face. In the meantime, we're busy enough with far more minor troubles.

Of the 350 who answered, giving their preferences, 181 voted for Colonel Lanza's articles, one going as far back as a 1936 issue. Among the others, those items receiving substantial recognition in the poll included stories and articles by Peter B. Kyne, William Hazlett Upson, Fletcher Pratt, Joseph Michael Lalley, and Lt. Col. R. E. Anderson, USA-Ret. The readers liked "The French Had a Word for It," by Capt. G. H. Vanture, "Type Problems," from the FAS, "Questions and Answers on Conduct of Fire," by Hq 111th FA, Virginia. They voted for Capt. D. C. McNair's discussion of lateral methods in vogue in the American, French, and German armies. And for Capt. C. P. Nicholas's "An Adventure in Gunnery." (Long memory, Major P. Unnecessarily so, Captain Nicholas.) They liked Lt. Greco's prize essay, 1938, Major Wahl's indoor fire-direction, Lt. Col. Wood's "Counterbattery in War of Movement," Mr. W. R. C. Greene's "Leadership." They voted, also, for Rollin Quezon's "Cushing's Command," for Lt. Col. A. R. Harris's "Bigger They Are, Harder They Fall," for "Extracts From an Epic," and for Captain H. F. Handy's "Graphical Shortcuts for *K*-Transfer." Here and there some of them liked almost everything recently printed, but the foregoing were standouts.

The dozen or so who wrote "I like them all," were flattering but unhelpful. One, who inscribed, "I read them all," is studious, if noncommittal, as

is one whose message reads, "I don't know." The most interesting answer received, and the most stimulating—in fact, the staff took its feet off the desk and bustled around at once—says: "Have not read them yet."

Those on foreign station didn't get a chance to poll, because the constitution provides that 50 per cent of those active members within the United States shall be represented in person or by proxy at the annual meeting. Their comments, however, are invited and welcomed.

It must be remembered that the members were not invited to search their memories beyond "recent JOURNALS." That many did so, nevertheless, is informative. However, the poll does not accurately reflect the value of articles published months or years ago. It was inaugurated for no other reason than to give the members an opportunity to do their own choosing of material, so far as that is practicable. The results of the poll will be carefully digested and recorded.

MR. WILLIAM HAZLETT UPSON, designer of the Earthworm tractor, creator of Alexander Botts, and recent inquirer in these pages, "Are Private Soldiers Necessary?" was in town recently. There is something peculiar to the three World War wagonsoldiers, Peter B. Kyne, Leonard H. Nason, and W. H. Upson, who dominate the soldier short story field: Mr. Upson lives in Middlebury, Vermont; Mr. Nason in Centerville, Massachusetts—is this beginning to make any impression?—and while Mr. Kyne lives in San Francisco, his home is on Greenwich street. There's datum for you.

THE FIELD MANUAL, which was previously predicted for appearance about this time, has been postponed for the present. Organization studies, it is said, naturally remain to be completed before publication can be authorized.

THE ARMY RESERVE OFFICER, a publication of West Coast Reserve personnel, is a newsy four-page semimonthly, edited by Lt. Fred Gustorf, Inf-Res, and published by Col. Dallas D. Ennis, Inf-Res. A recent issue announces the honoring of Col. Louis R. Dougherty, FA, by the Santa Monica Chapter, R.O.A., at a dinner prior to his departure for the Philippines.

NOW IN Mexico City, competing against the cream of Mexican horsemen, is a team of Field Artillery riders, captained by Major Norman J. McMahon, and including Captains Lew S. Griffing, Harold S. Isaacson, and Edward L. Andrews, and Lieut. W. A. Harris, with eight of the best mounts the arm could provide.

THE NORFOLK, Va., *Virginian-Pilot* speculates editorially on the possibility that should Brigadier General Craig McLanahan, 54th Field Artillery Brigade, be required by law to relinquish his command in view of the Maryland judicial post to which he was elected in November, he would be replaced by Colonel William H. Sands, 111th Field Artillery, Virginia National Guard (member of the Executive Council of The Field Artillery Association) of whom the paper speaks as "an admirably qualified officer."

MERRY CHRISTMAS.

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(As of November 1, 1938)

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F. S. Gardner — G. P. Privett — R. K. Quekemeyer

FIRST LIEUTENANTS

P. Clark, Jr. — A. C. Goodwin, Jr. — G. E. Lynch
T. W. Dunn — C. H. Jark — H. W. Riley

SECOND LIEUTENANTS

R. C. Gildart, 2d — D. W. Hayes — J. Taylor, Jr.
S. D. Smith, Jr.

EIGHTEENTH FIELD ARTILLERY, FORT SILL, OKLAHOMA

Colonel C. P. George — Lt. Col. C. H. Tate — Major W. L. Bevan
Lt. Col. H. S. Clarkson — Colonel E. R. Van Deusen — Major J. W. Loef
Lt. Col. J. E. Hatch — Major C. A. Beaucond — Major G. P. Winton

STATIONS OF FIELD ARTILLERY OFFICERS

CAPTAINS

W. B. Barnes
C. L. Boyle
H. W. Brimmer
R. P. Clay
F. Q. Goodell
G. A. Grayeb
K. W. Hisgen
H. S. Isaacson
H. L. Kersh
D. C. McNair
T. E. Meyer
W. T. O'Reilley
G. S. Price
W. A. Samouce
J. H. Sampson, Jr.
LeR. J. Stewart
W. D. Williams
L. H. Wyman

FIRST LIEUTENANTS

E. L. Barr
M. W. Brewster
L. W. Cather
P. H. Draper, Jr.
K. H. Ewbank
W. A. Harris
J. C. Hayden
P. J. Kopcsak
C. W. McConnell
L. K. Meade
D. H. Heyne
C. W. Miller
D. Parker, Jr.
T. J. Sands
E. A. Walker
A. Watson, 2d

SECOND LIEUTENANTS

C. H. Anderson
E. A. Bailey
T. C. Compton
J. M. Cone
C. C. Harvey, Jr.
L. E. Hoska, Jr.
G. C. McDowell
R. B. Partridge
W. C. Westmoreland

NINETEENTH FIELD ARTILLERY, FORT BENJAMIN HARRISON, INDIANA

Lt. Col. A. W. Waldron
Major J. F. Hepner

CAPTAINS

D. S. Babcock
W. J. Epes
B. P. Heiser
F. H. Sinclair
C. H. Mitchell

FIRST LIEUTENANTS

R. C. Carpenter
G. E. Dietz
H. C. Porter

SECOND LIEUTENANTS

W. E. Davis
J. B. Mitchell

TWENTY-FOURTH FIELD ARTILLERY (23d FA), FT. STOTSENBURG, P. I.

Col. L. R. Dougherty
Lt. Col. P. V. Kane
Lt. Col. T. G. M. Oliphant
Major D. T. Boisseau
Major R. Hirsch
Major H. N. Lockwood, Jr.
Major S. F. Reyes (PS)
Major F. V. Segundo (PS)
Major J. A. Sheridan
Major D. B. Floyd
Major A. P. Kitson

CAPTAINS

N. Catalan (PS)
R. Condon
G. B. Coverdale
H. J. Coyle
J. B. Daly
B. L. Davis
T. E. de Shazo
A. D. Garcia (PS)
V. Z. Gomez (PS)
T. S. Gunby
G. V. Keyser
J. H. Lewis, Jr.
A. Martelino (PS)
P. L. Martin
H. J. D. Meyer
R. I. Pride
J. O. Taylor
J. R. Lindsay, Jr.

FIRST LIEUTENANTS

G. E. Adams
H. M. Exton
J. Hagood, Jr.
W. H. Hoover
M. O. Perry
N. E. Poinier
G. M. Wertz, Jr.
J. W. Hansborough

SECOND LIEUTENANTS

J. G. Brimmer
R. L. Cato
C. W. Crockett
W. A. Davis
R. R. Ganns
R. C. Heflebower, Jr.
R. H. Safford
H. E. Marr, Jr.
C. B. Tyler, Jr.

TWENTY-FIFTH FIELD ARTILLERY, MADISON BARRACKS, N. Y.

Lt. Col. C. Brewer
Major W. F. Kernan

CAPTAINS

H. G. Elliott
E. B. Ely
G. P. Harrison
J. Mesick
M. C. Wilson

FIRST LIEUTENANT

D. R. French

SECOND LIEUTENANTS

B. P. Major — F. T. Unger

THIRTY-SIXTH FIELD ARTILLERY, FORT BRAGG, N. C.

Lt. Col. W. W. Hess, Jr. — Major A. W. Shutter

CAPTAINS

J. W. Black — W. W. Scott — W. A. Walker
P. W. Brown — F. G. Stritzinger

FIRST LIEUTENANTS

R. L. Carmichael, Jr. — C. A. Piddock

SECOND LIEUTENANTS

J. D. Torrey, Jr.

SIXTY-EIGHTH FIELD ARTILLERY, FORT KNOX, KENTUCKY

Col. M. Magruder — Lt. Col. A. J. Betcher — Major J. J. B. Williams
Major H. J. Gaffey

CAPTAINS

L. C. Friedersdorff — M. K. Kurtz — M. C. Walter
H. Y. Grubbs — B. F. Luebberman — J. P. Woodbridge
N. W. Jones — E. H. Metzger — G. F. Wooley, Jr.

FIRST LIEUTENANTS

J. G. Benner — W. F. Gallup — C. F. McNair
J. W. Cave — W. E. Grubbs — W. W. Sisson
J. L. Cowhey — L. T. Heath — N. M. Wallace

SECOND LIEUTENANTS

W. M. Lynn, Jr. — B. E. Powell

SEVENTY-SIXTH FIELD ARTILLERY, FORT FRANCIS E. WARREN, WYO.

Col. J. E. Mort — Lt. Col. J. M. Jenkins — Major J. C. Cook
Lt. Col. H. Templeton — Major L. F. Kosch — Major R. H. Knapp

CAPTAINS

G. M. Cole — J. H. Lousley — 1st Lt. E. S. Berry
K. N. Decker — C. A. Pyle — 1st Lt. W. J. Ledward
H. J. Harper — E. M. Taylor — 1st Lt. C. P. Westpheling
H. L. Ingham — C. Wesner — 2d Lt. M. E. Sparks

SEVENTY-SIXTH FIELD ARTILLERY, PRESIDIO OF MONTEREY, CAL.

Lt. Col. J. E. McMahon, Jr. — Major T. E. Buechler — Major W. A. Ray

CAPTAINS

E. A. Banning — I. L. Foster — J. M. Callicutt
H. M. Cole — C. B. Leinbach — F. Dorn
H. M. Schwarze

FIRST LIEUTENANTS

F. W. Ellery — R. H. Strauss

SECOND LIEUTENANTS

J. H. Daly — J. H. Hodges, Jr. — C. J. Blake, Jr.
T. L. Lipscomb

STATIONS OF FIELD ARTILLERY OFFICERS

SEVENTY-SEVENTH FIELD ARTILLERY, FORT SILL, OKLA.

Lt. Col. J. J. Waterman — Major R. T. Adams — Major F. H. Hollingsworth

CAPTAINS

V. F. Burger — C. M. Hallam — R. O. Montgomery
V. H. Connor — W. H. Kennett — J. F. Trent

FIRST LIEUTENANTS

C. Darnell, Jr. — G. G. Garton — H. J. Versace
J. J. Davis — J. A. Gloriod — D. F. Walker
G. L. Roberson — B. E. Spivy, Jr.

SECOND LIEUTENANT

J. C. Pitchford

SEVENTY-SEVENTH FIELD ARTILLERY, FORT D. A. RUSSELL, TEXAS

Col. R. H. Lewis — Major W. M. Tenney — Major H. J. Thornton
Lt. Col. H. L. C. Jones — Major W. W. Dixon

CAPTAINS

J. V. Collier — G. A. A. Jones — 1st Lt. J. B. Evans
H. F. Conrey — G. J. Reid — 1st Lt. J. R. Messersmith
H. H. Hunt — 1st Lt. S. F. Crawford — 2d Lt. L. B. Burkett

EIGHTIETH FIELD ARTILLERY, FORT DES MOINES, IOWA

Lt. Col. J. S. Wood — Major A. C. Donovan — Major T. R. Miller
Major A. M. Goldman

CAPTAINS

P. A. Berkey — K. W. Treacy — 1st Lt. R. G. Speiser
H. Crawford — R. T. Finn — 2d Lt. M. E. Allen
1st Lt. P. H. Pope

EIGHTY-SECOND FIELD ARTILLERY, FORT BLISS, TEXAS

Lt. Col. W. F. Winton — Major H. C. Demuth — Major H. W. Turner
Major T. R. Kerschner

CAPTAINS

J. H. Baumann — E. G. Farrand — J. E. Perman
J. J. Deery — A. J. Hastings — A. N. Williams, Jr.
W. P. Ennis, Jr. — C. D. Palmer — F. O. Wood

FIRST LIEUTENANTS

T. W. Carrithers — R. Hackett — M. A. Solomon
H. H. Critz — H. B. Harden, Jr. — H. S. Sundt
D. G. Dwyre — E. Kraus — M. Tague
D. M. Perkins

SECOND LIEUTENANTS

J. C. Damon — J. E. Goodwin — J. E. Norvell
W. A. Enemark — D. P. Quandt — J. Y. Parker
W. T. Weissinger

EIGHTY-THIRD FIELD ARTILLERY, FORT BENNING, GEORGIA

Lt. Col. C. G. Helmick — Major E. S. Ott

CAPTAINS

C. C. Blakeney — E. McGinley — E. W. Searby
L. E. Heyduck — R. M. Montague — F. J. Tate

FIRST LIEUTENANTS

H. W. Browning
M. S. Davis
W. P. Grieves
D. E. Means
W. Taylor, Jr.
O. C. Troxel, Jr.

SECOND LIEUTENANTS

B. M. Barksdale
C. L. Haley
R. H. Van Volkenburg
R. D. Offer

EIGHTY-THIRD FIELD ARTILLERY, FORT BRAGG, N. C.

Lt. Col. E. A. Zundel
Major W. Clarke
Major H. F. Searight

CAPTAINS

T. F. Keefe
R. F. McEldowney
H. L. Watts, Jr.
P. R. M. Miller

FIRST LIEUTENANTS

H. F. Bigelow
R. G. Crandall
B. W. McQuade
C. E. N. Howard, Jr.

SECOND LIEUTENANTS

S. K. Eaton
J. B. R. Hines
P. G. Lauman, Jr.

EIGHTY-FOURTH FIELD ARTILLERY, FORT RILEY, KANSAS

Lt. Col. R. Hospital

CAPTAINS

N. J. Eckert
O. Ellis
E. A. Elwood
W. D. McNair
M. Pierson
L. M. Rousch

FIRST LIEUTENANTS

J. K. Bryan
G. A. Carver
W. O. Darby
F. G. Hall
J. E. Thiemer

FIRST OBSERVATION BATTALION, FORT BRAGG, N. C.

Capt. P. A. Reichle
Capt. W. S. Nye
Capt. E. T. Owen
1st Lt. W. C. Bullock
1st Lt. J. G. Harding
1st Lt. M. Moses
1st Lt. D. N. Sundt

SECOND AMMUNITION TRAIN, FORT SILL, OKLAHOMA

Major J. A. Chase
Capt. F. J. Hierholzer

FIRST FIELD ARTILLERY BRIGADE, FORT HOYLE, MARYLAND

Lt. Col. C. B. King
Major C. W. Glover

SECOND FIELD ARTILLERY BRIGADE, FORT SAM HOUSTON, TEXAS
(12th and 15th FA—2d FA Brig.)

Col. B. M. Bailey
Col. J. N. Greely
Lt. Col. T. J. J. Christian
Lt. Col. C. M. Tuteur
Lt. Col. S. Bacon
Lt. Col. H. B. Parker

MAJORS

C. Bassich
A. Brumage
S. G. Fairchild
R. G. Hunter
J. McDowall
C. C. Park
D. B. Rogers
C. C. Knight, Jr.
R. A. Carter

CAPTAINS

R. L. Allen, Jr.
C. S. Berrien
E. S. Brewster, Jr.
J. R. Burrill
G. D. Crosby
F. M. Day
W. H. DeLange
T. O. Foreman
R. L. Gervais
R. W. Goldsmith
J. Gross
J. P. Holland
E. O. Lee
T. E. Lewis
F. A. Lightfoot
C. N. McFarland
H. T. Molloy
E. C. Norman
J. A. Samouce
M. B. Stokes, Jr.
W. E. Waters
J. M. Works
L. F. Young

STATIONS OF FIELD ARTILLERY OFFICERS

FIRST LIEUTENANTS

J. F. Ammerman
A. W. Blair
R. L. Brunzell
A. V. Dishman
J. E. Godwin
R. E. Hattan
N. L. Head
C. L. Jones
W. R. Thomas
F. C. Norvell

SECOND LIEUTENANTS

R. B. Anderson
B. D. Browne
J. W. Browning
R. M. Burnett
C. L. Curtis
H. G. Davisson
G. H. Duin
D. G. Grothaus
J. K. Neff
F. W. Norris
B. W. Porterfield
T. I. Sawyer

THIRD FIELD ARTILLERY BRIGADE, FORT LEWIS, WASHINGTON
(9th and 10th FA—3d FA Brig.)

Col. R. G. Kirkwood
Col. W. H. Peek
Lt. Col. W. Alexander

MAJORS

R. L. Burnell
S. F. Dunn
G. R. Hayman
M. V. Patton
V. R. Woodruff
B. Moore
A. S. Miller
R. H. Bacon
E. A. Erickson

CAPTAINS

G. D. Adamson
E. H. Barr
J. J. Burns
J. R. Culleton
S. A. Dickson
S. Edwards
E. C. Gillette, Jr.
J. P. Kaylor
W. W. Whelchel
J. A. McFarland
G. B. McReynolds
J. A. Sullivan
D. W. Traub

FIRST LIEUTENANTS

F. D. Atkinson
A. H. Hogan
R. A. Ports
B. Thielen

SECOND LIEUTENANTS

F. J. Chesarek
A. O. Connor
E. A. Grove
C. L. Johnson
J. V. Roddy
H. L. Stiegler

FOURTH FIELD ARTILLERY BRIGADE, FORT SILL, OKLAHOMA

Col. S. Miles
Major R. Campbell
Capt. N. F. Galbraith
1st Lt. P. H. Brown, Jr.
1st Lt. M. M. Magee
1st Lt. P. R. Weyrauch

SIXTH FIELD ARTILLERY BRIGADE, CHICAGO, ILLINOIS

Col. W. H. Dodds, Jr.
Major M. A. S. Ming
Major H. W. O. Kinnard
1st Lt. J. B. Rankin

ELEVENTH FIELD ARTILLERY BRIGADE, SCHOFIELD BARRACKS, T. H.
(8th, 11th, and 13th FA—11th FA Brig.)

Col. R. C. Burleson
Col. C. H. Lanza
Col. D. C. McDonald
Col. R. S. Parrott

LIEUT. COLONELS

G. E. Arneman
K. C. Greenwald
D. Hudnutt
C. B. McCormick
I. Spalding
W. Spence

MAJORS

J. R. Bibb
A. E. Billing
H. E. Camp
D. W. Craig
M. L. Craig
T. L. Futch
A. J. Zerbee
R. Garey
H. Harding
S. C. Hilton
H. D. Jay
W. E. Jenkins
F. B. Lyle
E. M. Graves
J. B. Matlack
J. F. Roehm
F. Royse
J. A. Stewart
P. G. Tenney
N. P. Walsh

CAPTAINS

J. E. Adkins, Jr.
J. P. Barney, Jr.
C. A. Billingsley
A. Bliss
C. D. Calley
J. C. Campbell
F. H. Canlett
A. L. Cobb
J. F. Collins
T. J. Counihan
D. Dunford
L. O. Field
J. F. Fiske
A. F. Freund
H. F. Handy
R. C. Hendley
H. W. Holt
B. Holtzworth
W. C. Huggins
S. R. Hurt
E. L. Johnson
J. P. Kennedy, Jr.
C. W. Land
J. Y. Le Gette
R. W. Mays
R. S. McClenaghan
R. C. Ross
R. Sears
A. R. Sewall
W. E. Shallene
R. C. Singer
J. E. Slack
R. T. Strode
W. A. D. Thomas
R. D. Waring
R. C. White

FIRST LIEUTENANTS

E. S. Bechtold
G. Blackburne
G. F. Brown
W. J. Bryde
Robt. E. Chandler
E. A. Clarke
R. C. Cooper
G. S. Eckhardt
E. H. Eddy
G. D. Ellerson
W. Y. Frentzel
E. J. Gibson
R. A. Hewitt
S. W. Horstman
H. J. Hubbard
W. H. Isbell, Jr.
I. W. Jackson
J. W. Keating
W. T. Kirn
E. J. Koehler
C. R. McBride
D. G. McLennan
F. P. Miller
F. A. Osmanski
C. M. Peeke
H. C. Plapp
T. S. Pollock
C. W. Raymond
J. W. M. Read
F. R. Redden
C. A. Schrader
D. Sinclair
H. G. Sparrow
L. R. St. John
A. G. Stone
E. L. Thompson
R. Van Roo
J. N. Wilson
T. E. Wood
D. T. Workizer

SECOND LIEUTENANTS

J. E. Barlow
P. Y. Browning
J. F. Brownlow, Jr.
F. P. Campbell
R. S. Carter
K. F. Dawalt
W. M. Griffin
E. J. Hahney
G. L. Higgins
F. W. Jenkins
C. F. von Kann
H. E. Mikkelsen
C. D. Hartman, Jr.
J. C. Nickerson, Jr.
E. C. Spaulding
J. H. Stangle
J. R. Wergin
F. G. White
D. R. Bodine

THIRTEENTH FIELD ARTILLERY BRIGADE, FORT BRAGG, N. C.

Major W. Michener
Capt. M. W. Daniel
1st Lt. J. F. Greco (at Ft. Riley, Kansas)

HEADQUARTERS, FORT BRAGG, N. C.

Col. O. A. Dickinson

FIELD ARTILLERY SCHOOL, FORT SILL, OKLAHOMA

Staff and Faculty

Col. A. McIntyre
Col. L. P. Collins
Col. J. T. Kennedy
Lt. Col. A. V. Arnold
Lt. Col. J. K. Boles
Lt. Col. R. P. Shugg
Lt. Col. G. W. Sliney
Lt. Col. J. B. Wogan
Lt. Col. J. C. Wyeth
Major B. A. Day
Major L. H. Hanley
Major G. D. Shea
Major P. T. Vance
Major P. P. Rodes
Capt. A. R. S. Barden
Capt. W. H. Bartlett
Capt. B. M. Bryan, Jr.
Capt. J. F. Williams
Capt. M. P. Echols
Capt. J. P. Eckert
Capt. C. R. Hutchison
Capt. C. P. Nicholas
Capt. J. C. Oakes
Capt. W. R. Pierce
Capt. J. F. Uncles
Capt. O. W. van den Berg
1st Lt. R. R. Mace

FIELD ARTILLERY SCHOOL DETACHMENT, FORT SILL, OKLAHOMA

Major P. Mallett
Major C. A. White
Capt. E. L. Andrews
Capt. L. S. Griffing
Capt. A. E. Kastner
1st Lt. L. V. Hightower

STATIONS OF FIELD ARTILLERY OFFICERS

Regular Course, 1938-39

FIRST LIEUTENANTS

R. H. Adams
R. C. Bahr
H. M. Batson, Jr.
R. C. Brisach
W. R. Calhoun
G. Chapman
L. Clarke
J. A. Costain
J. P. Craig
T. L. Crystal, Jr.
D. C. Cubbison, Jr.
K. L. Davis
J. J. Duffy
C. B. Elliott, Jr.
T. C. Foote
S. W. Gooch
C. L. Heitman, Jr.
P. T. Heningar
H. E. Herlong
E. G. Hickman
W. R. Huber
N. C. James
C. D. W. Lang
C. Lynn, Jr.
R. L. Martin
T. B. Maury, 3d
R. L. McKee
J. P. Pearson, Jr.
U. S. Penn, Jr.
M. V. Pothier
G. T. Powers, 3d
J. R. Pritchard
C. R. Revie
O. P. Robinson, Jr.
G. Ruhlen
W. F. Ryan
H. L. Sanders
J. O. Seaman
F. G. Smith
J. F. Smoller
D. W. Sudduth
J. F. Surratt
R. N. Tyson
D. C. Wallace
P. R. Walters
G. G. Warner
R. E. Weber, Jr.
W. P. Whelihan
C. H. White, Jr.
C. L. Williams, Jr.
V. P. Williams
J. R. Winn
S. K. Yarbrough, Jr.
R. P. Thompson

Advanced Course, Horsemanship, 1938-39

FIRST LIEUTENANTS

H. King
R. B. Neely
C. A. Symroski
S. E. Otto

Advanced Course, Motors, 1938-39

FIRST LIEUTENANTS

W. Fletter
R. B. Franklin
D. A. Herman
D. E. Jones
J. C. McCawley
W. M. Tisdale
G. W. Power

ELECTRICAL ENGINEERING COURSE, PURDUE UNIVERSITY

1st Lt. G. W. Seaward

SOUND AND FLASH RANGING COURSE, UNIVERSITY OF PENNSYLVANIA

1st Lt. A. R. Hercz

AIR CORPS TACTICAL SCHOOL, MAXWELL FIELD, ALA.

Capt. H. W. Kiefer

ECOLE SUPERIEURE DE GUERRE, PARIS, FRANCE

Maj. L. J. Fortier

GERMAN GENERAL STAFF SCHOOL, BERLIN, GERMANY

Capt. R. C. Partridge

INSTRUCTORS, OTHER SERVICE SCHOOLS

Lt. Col. E. J. Dawley, Infantry School, Fort Benning, Ga.
Lt. Col. H. C. Vanderveer, Cavalry School, Fort Riley, Kans.
Lt. Col. H. H. Ristine, Air Corps Tactical School, Maxwell Field, Ala.

COMMAND AND GENERAL STAFF SCHOOL, FORT LEAVENWORTH, KANSAS

Instructors

Lt. Col. F. W. Bowley
Lt. Col. W. E. Burr
Lt. Col. S. D. Downs, Jr.
Lt. Col. H. L. McBride
Major W. P. Bledsoe
Major E. H. Brooks
Major W. A. Campbell
Major A. M. Gurney
Major R. T. Guthrie
Major W. H. Maris
Major B. H. Perry

Students

MAJORS

F. H. Black
S. F. Clark
J. H. Fye
L. S. Partridge
A. R. Reeves

CAPTAINS

H. P. Adams
W. A. Beiderlinden
J. J. Binns
E. C. Burkart
R. H. Coombs
D. G. Erskine
F. W. Farrell
H. C. Fowler
B. Furuholmen
R. G. Gard
W. N. Gillmore
L. W. Haskell
T. B. Hedekin
W. R. Hensey, Jr.
C. P. Jones
H. D. Kehm
I. L. Kitts
S. V. Krauthoff
S. C. Lombard
R. L. Mabie
L. Mathewson
M. McClure
J. B. Murphy
T. A. Roberts, Jr.
J. A. Smith, Jr.
V. R. Smith
C. H. Studebaker
K. S. Sweany
J. M. Willems
E. T. Williams
J. L. Langevin
D. V. Johnson
J. B. Horton

THE ARMY WAR COLLEGE, FORT HUMPHREYS, D. C.

Staff and Faculty

Col. N. B. Rehkopf
Col. H. W. Huntley
Lt. Col. H. J. Malony
Col. E. P. King, Jr.

Students

Lt. Col. L. A. Craig
Lt. Col. J. D. von Holtzendorff
Major H. W. Blakeley
Major B. Campbell
Major H. A. Cooney
Major G. O. Kurtz
Major J. R. Sheetz
Capt. E. Y. Argo
Capt. J. D. Balmer
Capt. G. R. Carpenter
Capt. A. M. Gruenther
Capt. J. H. Hinds
Capt. C. B. Magruder
Capt. W. B. Palmer
Capt. E. L. Sibert

Historical Section

Col. O. L. Spaulding
Col. G. W. DeArmond
Lt. Col. L. E. Jones
Lt. Col. R. B. McBride, Jr.

NAVAL WAR COLLEGE, NEWPORT, R. I.

Major W. C. Dunckel
Major C. S. Ferrin

ARMY INDUSTRIAL COLLEGE, WASHINGTON, D. C.

Major W. R. Frost
Major G. D. Wahl

OXFORD UNIVERSITY, LONDON, ENGLAND

2d Lt. W. M. Connor

UNITED STATES MILITARY ACADEMY, WEST POINT, N. Y.

Col. J. L. Devers
Lt. Col. F. B. Prickett
Lt. Col. L. E. Hibbs
Lt. Col. S. E. Reinhart
Major R. E. Dupuy

CAPTAINS

C. J. Barrett, Jr.
F. J. Brown
T. Calhoun, Jr.
J. L. Chamberlain, Jr.
H. B. Enderton
E. B. Gjelsteen
R. J. Handy
C. E. Hart
S. V. Hasbrouck
A. L. Keyes
H. W. Kruger
A. T. Leonard
G. F. Lillard
F. A. March, 3d
C. M. Matthews
E. J. McGaw
E. H. McLemore
G. H. McManus, Jr.
E. Parmly, 3d
P. Sather, Jr.
W. T. Sexton
D. S. Somerville
W. C. Stanton
M. F. Stober
C. P. Summerall, Jr.
T. M. Watlington, Jr.
W. M. Wright, Jr.

FIRST LIEUTENANTS

W. H. Allen, Jr.
D. P. Armstrong
J. R. Beishline
J. A. Berry, Jr.
R. D. Black, Jr.
H. E. Brooks
D. F. Brown
H. Chaffee
G. K. Cusack
J. P. Daley
W. W. Dick, Jr.
W. A. Downing, Jr.
G. C. Duehring
M. L. Fisher
A. Graham
A. A. Greene
J. P. Hannigan
J. J. Heriot
A. Hero, 3d
B. D. Jones
W. E. Kraus
P. H. Lash, Jr.
D. C. Little
G. C. Lothrop
S. L. Morrow, Jr.
J. S. Nesbitt
A. P. O'Meara
H. B. Packard
T. W. Parker
J. D. F. Phillips
S. Sawicki
G. S. Speidel, Jr.
J. F. Stroker
F. G. Terry
P. S. Thompson
W. J. Thompson
P. C. Wehle
R. D. Wentworth

OFFICERS ON ROTC DUTY

Alabama Polytechnic Institute, Auburn, Ala.

Lt. Col. F. C. Wallace
Major E. H. Almquist
Capt. L. H. Ham
Capt. L. E. Jacoby
Capt. K. L. Johnson
Capt. W. J. Klepinger
Capt. J. L. McKinnon
Capt. G. R. Scithers

Arkansas State College, Jonesboro, Ark.

Major W. E. Corkill
Capt. F. J. Achatz
Capt. J. L. Lewis

Colorado State College of A & M Arts, Fort Collins, Colo.

Lt. Col. N. P. Morrow
Captain S. E. Bullock
Major J. P. Donnovin
Capt. C. E. Margrave
Capt. W. C. Stout

Cornell University, Ithaca, N. Y.

Col. W. C. Potter
Major C. E. Boyle
Major F. A. Metcalf
Capt. A. B. Devereaux
Capt. L. B. Downing
Capt. J. R. Pitman
Capt. R. R. Raymond, Jr.
Capt. G. M. Williamson, Jr.

Culver Military Academy, Culver, Indiana

Capt. W. J. Eyerly

Duquesne University, Pittsburgh, Pa.

Lt. Col. M. Proctor
Capt. H. E. Sowell
Capt. R. T. Tompkins

University of Florida, Gainesville, Florida

Col. W. S. Browning
Major J. H. Keatinge
Major C. M. Lucas
Capt. F. T. Dodd
Capt. R. H. Donaldson
Capt. E. M. Edmonson
Capt. R. P. Huff
Capt. W. D. Paschall

Eastern Kentucky State Teachers College, Richmond, Kentucky

Major C. W. Gallaher
Capt. W. W. Ford
Capt. E. M. Link

Harvard University, Cambridge, Mass.

Lt. Col. A. R. Harris
Capt. L. B. Bixby
Capt. C. E. Stancisko
Major C. E. Sargent

University of Illinois, Urbana, Ill.

Major C. B. Cole
Capt. F. S. Kirkpatrick
Capt. R. S. Marr
Major L. M. Hanna
Capt. W. F. Millice
Capt. E. M. Quigley
Capt. E. A. Routheau

Iowa State College of A & M Arts, Ames, Iowa

Lt. Col. H. R. Odell
Major P. Winlock
Capt. H. Cort
Capt. J. K. Gibson
Capt. R. F. Hallock
Capt. M. M. Potter
Capt. R. C. Wood, Jr.

Louisiana State University and A & M College, Baton Rouge, La.

Major C. Pickett
Capt. R. C. Conder
Capt. C. G. Follensbee
Capt. O. W. Martin

Michigan State College of Agriculture and Applied Sciences, East Lansing, Mich.

Major A. C. Stanford
Capt. O. M. Barton
Capt. C. E. Hixon
Capt. M. H. Doty

University of Missouri, Columbia, Mo.

Col. R. C. F. Goetz
Major J. S. Mallory
Capt. R. C. Lawes
Capt. R. G. Miller
Capt. W. W. Webster
Capt. C. S. Whitmore

University of Nebraska, Lincoln, Nebr.

Major R. G. Barkalow
Major W. R. Philp
Capt. W. R. Grove

Ohio State University, Columbus, Ohio

Col. O. L. Brunzell	Capt. M. H. Burckes	Capt. J. B. Rasbach
Lt. Col. D. J. Page	Capt. J. W. Clyburn	Capt. A. E. Smith
Lt. Col. E. T. Spencer	Capt. C. W. Cowles	Capt. J. C. Strickler
Major R. J. Canine	Capt. J. G. Howard	Capt. E. V. Williamson
Capt. W. H. Bertsch, Jr.	Capt. H. K. Palmer, Jr.	Capt. E. E. Elliott

University of Oklahoma, Norman, Oklahoma

Lt. Col. R. M. Howell	Capt. J. D. Anding	Major M. M. Pharr
Major C. H. Brammell	Capt. J. V. Carroll	Capt. A. L. Shreve
Major D. F. Jones	Capt. L. L. Hittle	Capt. M. G. Smith
	Capt. L. R. Wingfield	

Oregon State Agricultural College, Corvallis, Ore.

Lt. Col. J. E. Sloan	Capt. H. A. Doherty	Capt. R. A. Ellsworth
	Capt. E. J. Roxbury	

Princeton University, Princeton, N. J.

Lt. Col. D. E. Cain	Major Z. E. Lawhon	Capt. Creswell C. Blakeney
Major J. T. B. Bissell	Capt. E. A. Bixby	Capt. E. S. Molitor

Purdue University, Lafayette, Ind.

Col. D. M. Beere	Capt. J. L. Graves	Capt. E. J. Murphy
Lt. Col. J. A. Pickering	Capt. B. F. Hayford	Capt. F. B. Porter
Major J. W. Faulconer, Jr.	Capt. E. V. Holmes	Capt. P. W. Thompson
Major R. B. Warren	Capt. D. Larr	Capt. J. M. Whistler
Capt. S. A. Beckley	Capt. F. H. Morse	Capt. C. O. Wiselogel

University of Santa Clara, Santa Clara, Cal.

Major E. T. Barco	Capt. R. G. Duff	Capt. H. E. Sanderson

Leland Stanford Jr. University, Stanford University, Cal.

Lt. Col. B. R. Peyton	Major H. B. Allen	Major L. H. Slocum
	Capt. J. F. Bird	

St. Bonaventure College, Allegany, New York

Major D. de S. Trenholm	Major C. F. Murray	Capt. T. B. Whitted, Jr.

A & M College of Texas, College Station, Tex.

Lt. Col. O. E. Beezley	Capt. J. A. Cella	Capt. L. R. Garrison
Capt. C. F. Burback	Capt. P. H. Enslow	

University of Utah, Salt Lake City, Utah

Lt. Col. C. C. Bank	Capt. F. W. Lee	Capt. G. E. Mitchell, Jr.
Major P. C. Boylan	Capt. W. E. Watters	Capt. J. R. Wheaton

Virginia Military Institute, Lexington, Va.

Major J. M. Fray	Major G. G. Heiner, Jr.	Capt. A. T. McCone

Yale University, New Haven, Conn.

Lt. Col. F. T. Armstrong	Major J. M. Devine	Capt. W. H. Hill
	Capt. R. M. Wicks	

Xavier University, Cincinnati, Ohio

Major F. Camm	Major A. M. Harper	Capt. G. E. Wrockloff, Jr.

STATIONS OF FIELD ARTILLERY OFFICERS

JUNIOR ROTC

Bellamine High School, Tacoma, Washington—Major A. L. Warren.
Benedictine School, Savannah, Georgia—Capt. S. S. Koszewski.
Chicago High Schools, Chicago, Illinois—Col. W. F. Morrison, Major W. B. Weston.
Davenport High School, Davenport, Iowa—Major P. J. Atkinson.
Detroit High Schools, Detroit, Michigan—Capt. R. H. Slider.
Florida Military Academy, St. Petersburg, Fla.—Major S. L. Bertschey.
Gary High School, Gary, Indiana—Capt. D. Q. Harris.
Guthrie High School, Guthrie, Oklahoma—Major J. W. Russey.
Carthage High School, Carthage, Missouri—Major E. R. Block.
Jackson High School, Jackson, Mississippi—Capt. D. F. Healy, Jr.
Long Beach High School, Long Beach, Cal.—Major A. Smith.
Los Angeles High Schools, Los Angeles, Cal.—Major G. H. Duff.
Marion Institute, Marion, Alabama—Major W. W. Murphey.
Memphis High School, Memphis, Tenn.—Major H. H. F. Gossett.
New Bedford High School, New Bedford, Conn.—Major G. R. Rede.
Oakland High School, Oakland, Cal.—Capt. H. L. Love.
Porter Military Academy, Charleston, S. C.—Major A. B. Wade.
Robert E. Lee Institute, Thomaston, Ga.—Capt. T. E. Binford.
Roger High School, Newport, R. I.—Major R. L. Greene.
Santa Barbara High School, Santa Barbara, Cal.—Capt. F. F. Carpenter, Jr.
Savannah High School, Savannah, Georgia—Major H. R. Hanson.
St. Joseph College, Hays, Kansas—Major J. G. Cook.
St. Joseph High School, St. Joseph, Mo.—Capt. F. R. Brisach.
St. Norbert College, West De Pere, Wisconsin—Major B. M. James.
The Sewanee Military Academy, Sewanee, Tenn.—Capt. W. L. Coughlin.
Walla Walla High School, Walla Walla, Washington—Capt. P. W. Allison.

DUTY WITH ORGANIZED RESERVES

Lt. Col. B. Frankenberger, Providence, R. I.
Lt. Col. J. A. Hoag, Pittsfield, Mass.
Lt. Col. S. L. Kiser, Portland, Maine.
Major L. H. Bixby, Manchester, N. H.
Major M. A. Dawson, Boston, Mass.
Major J. D. Matthews, Greenwich, Conn.
Major D. J. Sabini, Boston, Mass.
Major L. M. Skerry, Worcester, Mass.
Major V. L. Knadler, Manchester, N. H.
Col. P. W. Booker, Buffalo, N. Y.
Major J. P. Ratay, Newark, N. J.
Major R. L. Dalferes, New York, N. Y.
Col. J. H. Bryson, Syracuse, N. Y.
Col. J. W. Downer, New York, N. Y.
Col. J. M. McDowell, New York, N. Y.
Major P. C. Fleming, Albany, N. Y.
Major A. E. Fox, New York, N. Y.
Major E. A. Henn, Elizabeth, N. J.
Lt. Col. W. J. Jones, New York, N. Y.
Major Jos. Kennedy, New York, N. Y.
Major I. D. Warner, East Orange, N. J.
Major R. B. Willis, New York, N. Y.
Col. W. K. Moore, Harrisburg, Pa.
Col. J. R. Starkey, Philadelphia, Pa.
Lt. Col. J. G. Burr, Washington, D. C.
Lt. Col. D. A. Connor, Richmond, Va.
Lt. Col. W. D. Mangan, Pittsburgh, Pa.
Lt. Col. N. N. Polk, Baltimore, Md.
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Capt. T. A. Jennings, Pittsburgh, Pa.
Major F. W. Boucher, Ft. Wayne, Ind.
Col. R. M. Milam, Lafayette, Ind.
Capt. S. F. Little, Cincinnati, Ohio.
Major D. S. Doggett, Toledo, Ohio.
Major W. J. Egan, Columbus, Ohio.
Major W. S. Evans, Cleveland, Ohio.
Major D. M. Hoagland, Muncie, Ind.
Major E. A. Hyde, Charleston, W. Va.
Major A. E. King, Akron, Ohio.
Major R. G. Mangum, Louisville, Ky.
Major R. V. Maraist, Indianapolis, Ind.
Major G. R. Middleton, Indianapolis, Ind.
Major J. M. Sanderson, South Bend, Ind.
Major D. C. Schmahl, Dayton, Ohio.
Major S. M. Smith, South Bend, Ind.
Major J. J. Atkinson, Norman, Okla.
Major L. M. Kilgarif, Dallas, Texas.
Major W. C. Lattamore, Waco, Texas.
Major A. H. Lee, Oklahoma City, Okla.
Major C. S. Richards, Fort Worth, Texas.
Lt. Col. T. W. Wrenn, Denver, Colo.
Capt. W. R. Schaefer, Houston, Texas.
Capt. J. T. Loome, Denver, Colo.
Col. F. S. Bowen, Portland, Oregon.
Lt. Col. W. F. Maher, Los Angeles, Cal.
Major J. G. Watkins, Salt Lake City, Utah.
Major J. R. Young, Salt Lake City, Utah.
Col. J. G. Tyndall, Los Angeles, Cal.
Col. W. P. Ennis, Ft. Bragg, N. C.
Col. T. G. Gottschalk, New Orleans, La.
Col. W. D. Smith, Columbia, S. C.
Lt. Col. F. H. Gallup, Charlotte, N. C.
Lt. Col. M. H. Taulbee, Birmingham, Ala.
Major C. C. Brown, Raleigh, N. C.
Major J. M. Garrett, Jr., Montgomery, Ala.
Major J. E. Ray, Macon, Georgia.
Major A. P. Rhett, Nashville, Tenn.
Major E. A. O'Hair, Augusta, Ga.
Capt. H. W. Tarkington, Columbia, S. C.
Capt. G. D. Vanture, Tampa, Fla.
Lt. Col. J. Andrews, Chicago, Ill.
Lt. Col. C. H. Hayes, Chicago, Ill.
Lt. Col. M. C. Heyser, Detroit, Mich.
Major H. M. Findlay, Chicago, Ill.

Major J. C. Hughes, Wausau, Wis.
Major T. C. McCormick, Detroit, Mich.
Major W. H. McNaught, Milwaukee, Wis.
Major J. C. Patterson, Springfield, Ill.
Capt. F. W. Crary, Chicago, Ill.
Col. G. M. Peek, Kansas City, Mo.
Lt. Col. R. F. Hyatt, Little Rock, Ark.
Major J. C. Adams, Wichita, Kansas.
Major C. W. Bonham, St. Louis, Mo.
Major R. H. Crosby, St. Paul, Minn.
Major L. A. Kurtz, Des Moines, Iowa.
Major L. McHale, Sioux City, Iowa.
Lt. Col. Y. D. Vesely, Omaha, Neb.
Capt. C. H. Day, Minneapolis, Minn.
Capt. G. H. McConnell, Davenport, Iowa.
Major M. C. Shea, San Antonio, Texas.
Capt. W. Hayford, 3d, Oklahoma City, Okla.
Major W. B. Walters, Denver, Colo.
Col. A. Boone, Seattle, Washington.
Col. A. J. Greer, Los Angeles, Cal.
Major H. T. Brotherton, Portland, Oregon.
Major R. W. Yates, Salt Lake City, Utah.
Col. J. R. Davis, San Francisco, Cal.

ON DUTY AS INSTRUCTORS WITH THE NATIONAL GUARD AND ON DUTY NATIONAL GUARD BUREAU

Lt. Col. E. C. Hanford—Washington, D. C. National Guard Bureau.
Major C. C. Alexander—Washington, D. C. National Guard Bureau.

Col. F. A. Ruggles, Hartford, Conn.
Lt. Col. J. Keliher, Boston, Mass.
Major W. W. Belcher, Norwalk, Conn.
Major W. C. Brigham, Providence, R. I.
Major G. L. Danforth, Stamford, Conn.
Major W. C. Goessling, Presque Isle, Me.
Major R. A. Knight, Manchester, N. H.
Major N. E. McCluer, Caribou, Me.
Major W. B. Leitch, Allston, Mass.
Capt. W. P. Blair, Providence, R. I.
Major L. E. Reigner, Salem, Mass.
Lt. Col. G. H. McCoy, Biloxi, Miss.
Major B. C. Anderson, Enterprise, Ala.
Major L. E. Babcock, New Bern, N. C.
Major J. C. Butner, Jr., Lakeland, Fla.
Major C. R. Doran, New Orleans, La.
Major B. B. Lattimore, Columbus, Miss.
Major M. S. Creusere, Andalusia, Ala.
Major W. H. Quarterman, Jr., Savannah, Ga.
Major A. S. Quintard, New Bern, N. C.
Major P. E. Shea, Tampa, Fla.
Major C. M. Thirlkeld, Columbia, S. C.
Capt. G. S. Smith, Greenville, Miss.
Major J. M. Reynolds, Savannah, Ga.
Lt. Col. F. B. Inglis, Hutchison, Kans.
Major J. H. Carricker, Duluth, Minn.
Major R. H. Dixon, Boone, Iowa.
Major E. B. Edwards, Columbia, Mo.
Major L. H. Frasier, Topeka, Kansas.
Major R. D. Terrell, Sioux Falls, S. D.
Major J. A. Wallace, Minneapolis, Minn.
Major J. G. White, Maryville, Mo.
Capt. C. W. Stratton, Bismarck, N. D.
Major R. M. Bathurst, San Antonio, Tex.
Major H. P. Gantt, Anadarko, Okla.
Major M. C. Walton, Dallas, Texas.
Major C. W. Mays, Corpus Christi, Texas.
Col. W. H. Shepherd, Salt Lake City, Utah.
Lt. Col. J. B. Hunt, Portland, Oregon.
Major J. M. DeWeese, Ogden, Utah.
Major L. M. Haynes, Oakland, Cal.
Major H. A. Schwarz, Boise, Idaho.
Major S. G. Brady, New York, N. Y.
Lt. Col. H. S. Struble, Buffalo, N. Y.
Major W. G. Dockum, Binghamton, N. Y.
Major J. L. Gammell, New York, N. Y.
Major R. C. Montgomery, Camden, N. J.
Major J. S. Tate, Kingston, N. Y.
Major M. L. Young, Trenton, N. J.
Lt. Col. R. T. Heard, Jamaica, N. Y.
Capt. G. B. Barth, New York, N. Y.
Major W. C. Green, New York, N. Y.
Lt. Col. E. P. Parker, Jr., Richmond, Va.
Major J. Nash, Pikesville, Md.
Major C. D. Parmelee, Norfolk, Va.
Major G. P. Seneff, Wilkes-Barre, Pa.
Major A. M. Sheets, Pittsburgh, Pa.
Capt. L. B. Ely, Philadelphia, Pa.
Capt. C. R. Gildart, Philadelphia, Pa.
Capt. L. T. McMahon, Harrisburg, Pa.
Major O. M. Moore, Pittsburgh, Pa.
Major R. A. Gordan, Indianapolis, Ind.
Major T. E. T. Haley, Columbus, Ohio.
Major A. R. Ives, Columbus, Ohio.
Major S. McLeod, Indianapolis, Ind.
Capt. J. Ganahl, Cleveland, Ohio.
Capt. H. C. Raymond, Louisville, Ky.
Major R. M. Wightman, Louisville, Ky.
Col. F. T. Cruse, Madison, Wis.
Lt. Col. C. K. Rhinehart, Chicago, Ill.
Major W. H. E. Holmes, La Crosse, Wis.
Major M. L. McCreary, Milwaukee, Wis.
Major E. R. Roberts, Lansing, Mich.
Major O. N. Schjerven, Monmouth, Ill.
Major J. J. Waters, Chicago, Ill.
Major J. H. Milam, Detroit, Mich.
Capt. J. E. Bush, Jackson, Mich.
Major J. J. France, Hiawatha, Kansas.
Capt. R. O. Smith, Fort Smith, Ark.
Lt. Col. H. C. Jones, Denver, Colo.
Major D. L. Crane, Tulsa, Okla.
Major R. C. Snyder, Enid, Okla.
Capt. M. B. Barragan, San Antonio, Tex.
Capt. S. Y. McGiffert, Oklahoma City, Okla.
Lt. Col. P. L. Thurber, Seattle, Wash.
Major G. J. Downing, Tacoma, Wash.
Major J. O. Hoskins, Stockton, Cal.
Major S. White, Salt Lake City, Utah.

OFFICE, ASSISTANT SECRETARY OF WAR

Lt. Col. J. E. Lewis

STATIONS OF FIELD ARTILLERY OFFICERS

OFFICE, CHIEF OF STAFF

Lt. Col. J. Magruder

WAR DEPARTMENT GENERAL STAFF, WASHINGTON, D. C.

Col. E. R. W. McCabe
Col. J. A. Crane
Col. E. L. Gruber
Col. L. C. Sparks
Lt. Col. J. W. Anderson
Lt. Col. C. Andrus
Lt. Col. C. M. Busbee
Lt.Col. H. E. Maguire
Lt. Col. V. Meyer
Lt. Col. O. Ward
Major L. J. Compton
Major E. C. Ewert
Lt. Col. T. T. Handy
Major R. W. Hasbrouck
Major L. B. Hershey
Major B. M. Sawbridge
Major L. J. Whitlock
Major A. R. Wilson

GENERAL STAFF WITH TROOPS

Col. F. W. Clark, Hq. 3d Div.
Col. E. H. DeArmond, Philippines
Col. H. D. Higley, Hq. 8th CA
Col. H. E. Marr, Philippines
Col. T. D. Osborne, Hawaii
Col. R. S. Pratt, Hq. 9th CA
Col. F. K. Ross, Hq. 2d CA
Col. C. A. Baehr, Philippines
Lt. Col. C. L. Clark, Hq. 3d CA
Lt. Col. W. R. Gruber, Hawaii
Col. P. Hayes, Hawaii
Lt. Col. F. Heard, Hq. 8th CA
Lt. Col. K. P. Lord, Hq. 1st Div.
Lt. Col. J. M. Swing, Hq. 8th CA
Major M. A. Cowles, Hawaii
Major G. P. Hays, Hq. 6th CA
Major M. M. Montgomery, Hq. 5th CA
Major S. Knopf, Hq. 4th CA
Major M. R. Cox, Panama
Lt. Col. J. M. Eager, Hq. 5th CA
Col. B. F. Miller, Hq. 1st CA
Col. J. P. Marley, Hq. 2d CA

ARMY STAFF

Col. J. A. Moss, Second Army, Chicago, Ill.
Col. W. F. Sharp, Fourth Army, San Francisco, Cal.

CORPS AREA STAFF

Col. R. W. Briggs, Hq. 7th CA
Col. P. V. Kieffer, Hq. 1st CA
Col. C. Parker, Hq. 2d CA
Col. A. L. P. Sands, Hq. 4th CA
Col. R. Talbot, Jr., Hq. 9th CA
Lt. Col. R. C. Batson, Hq. 3d CA
Lt. Col. L. R. Cole, Hq. 3d CA
Lt. Col. C. A. Selleck
Major C. I. McClure, Hq. 7th CA

DUTY WITH GENERAL STAFF WITH TROOPS

Major M. W. Pettigrew, Hawaii
Capt. J. S. Winn, Jr., Hq. 6th CA.

MILITARY ATTACHES

Col. G. H. Paine, Rome, Italy
Col. H. H. Fuller, Brussels, Belgium
Col. R. E. Lee, London, England
Major P. G. Black, Berlin, Germany
Major W. H. Colbern, Warsaw, Poland
Major L. M. Riley, Prague, Czechoslovakia
Major W. L. Kluss, Istanbul, Turkey
Capt. F. P. Munson, China.
Major W. Mayer, China

DETAILED TO OTHER ARMS AND SERVICES

Adjutant General's Department

Major S. F. Miller
Capt. H. M. Jones
Capt. B. M. Fitch

Air Corps

SECOND LIEUTENANTS

S. W. Agee, Jr., will trans. to A.C.
J. F. Batjer, will trans. to A.C.
C. H. Diehl, Jr., will trans. to A.C.
J. G. Eriksen, will trans. to A.C.
H. E. Hammond, will trans. to A.C.
W. K. Horrigan, will trans. to A.C.
R. F. Lesser, will trans. to A.C.
I. W. McElroy, will trans. to A.C.
H. F. Van Leuven, will trans. to A.C.
C. B. Westover, will trans. to A.C.
R. A. Zaiser
W. D. Cairnes
L. D. Adams
S. L. Barbour, Jr.
W. H. Blanchard
E. B. Broadhurst
R. A. Broberg
L. E. Coira, Jr.
F. B. Harrison
J. R. Hopson
H. C. Huglin
L. O. Krug
R. C. McBride
J. D. Moorman
D. C. Polhamus
J. D. Ryan
D. W. Saunders
W. K. Skaer
F. P. Sturdivant
A. B. Sundin
W. A. Sundlof
M. F. Taber
M. L. Webb
L. E. Wernberg

Bureau of Insular Affairs, Washington, D. C.

Lt. Col. H. Eager

Chemical Warfare Service

1st Lt. R. L. Cardell

Finance Department

Capt. W. A. Enos

Inspector General's Department

Col. W. R. Henry
Col. K. S. Perkins
Col. W. S. Wood
Col. L. J. Ahern
Lt. Col. F. B. Jordan
Lt. Col. W. R. Woodward
Major R. W. Hocker
Major E. C. Williams

Judge Advocate General's Department

Capt. I. A. Duffy
Capt. I. Schindler
Capt. A. Svihra
Capt. A. R. Taylor
1st Lt. W. J. Connally, Jr.
1st Lt. A. M. Haynes

Ordnance Department

FIRST LIEUTENANTS

J. D. Armitage
C. F. Buck, Jr.
J. A. Cain, Jr.
M. B. Chatfield
E. Gray
F. A. Hansen
C. K. McClelland, Jr.
R. W. Meals
D. J. Murphy
J. G. Shinkle
S. Smellow
D. E. Breakefield

Quartermaster Corps

MAJORS

C. A. Bennett
E. Busch
F. S. Conaty
H. B. Dawson
H. Kernan
H. J. Guernsey
C. R. Lehner
O. M. Marshburn
H. E. Tisdale

CAPTAINS

J. B. Clearwater
N. C. Cureton, Jr.
P. B. Herrick
F. C. Holbrook
W. L. Kay, Jr.
J. Massaro
C. E. Pease
P. H. Ringsdorf
L. E. Snell
L. Vocke
R. J. West, Jr.
M. C. Wilson

FIRST LIEUTENANT

C. I. Hutton

Signal Corps

1st Lt. L. A. Mason
1st Lt. J. H. Squier

STATIONS OF FIELD ARTILLERY OFFICERS

AIDES

Col. E. M. Watson—Aide to The President.
Lt. Col. V. E. Prichard—Gen. Drum.
Capt. P. A. Gavan—Gen. Brees.
Capt. H. J. John—Gen. Bowley.
Capt. T. L. Sherburne, Jr.—Gen. De Witt.
1st Lt. A. R. Fitch—Gen. McNair.
Major D. O. Hickey—Gen. Honeycutt.
1st Lt. R. H. Harrison—Gen. Bundel.
1st Lt. E. S. Hartshorn, Jr.—Gen. Merrill.
1st Lt. J. T. Honeycutt—Gen. Herron.
1st Lt. H. M. Peyton—Gen. Peek.
1st Lt. R. S. Pratt, Jr.—Gen. Merrill.
1st Lt. J. H. Skinner—Gen. Foy.
1st Lt. C. C. Smith, Jr.—Gen. Sweeney.
1st Lt. B. Hamlett—Gen. McNair.

ORIENTAL LANGUAGE STUDENTS

Capt. S. H. Fisher—China.
Capt. M. D. Taylor—Japan.
Capt. S. Wood—Japan.

RECRUITING

Col. T. P. Bernard—Cincinnati, Ohio.
Col. L. S. Ryan—Oklahoma City, Okla.
Lt. Col. A. C. Sullivan—Columbus, Ohio.
Major F. G. Chaddock—Spokane, Wash.
Major S. J. Cutler—Dallas, Texas.
Major E. S. Van Benschoten—Ft. Slocum, N. Y.
Col. F. A. Prince—Montgomery, Ala.
Capt. G. E. Burritt—Ft. Slocum, N. Y.
Capt. J. B. Kraft—Ft. Slocum, N. Y.
Capt. N. H. Smith—Ft. McDowell, Cal.
Capt. A. Vepsala—Ft. McDowell, Cal.
Major T. R. Willson—Ft. Slocum, N. Y.
Major H. C. Brenizer—Ft. Slocum, N. Y.

CCC

Col. J. P. Barney—Hq. 3d CA.
Col. W. F. Jones—Hq. 8th CA.
Lt. Col. J. N. Hauser—Oklahoma City, Okla.
Lt. Col. E. Yeager—Hq. 2d CA.
Major J. F. Brittingham—Fort Benning, Ga.
Major L. A. Daugherty—Fort Lewis, Wash.
Major E. T. Hayes—Fort Benjamin Harrison, Indiana.
Major M. E. Scott—Hq. 9th CA.
Major F. H. Gaston—Des Moines, Iowa.
Major R. V. K. Harris, Jr.—Camp Beauregard, La.
Major J. L. McIlhenny—Hq. 3d CA.
Major W. A. Metts, Jr.—Ft. Bragg, N. C.
Major D. L. Ruffner—Sparta, Wis.
Major J. A. Steere—Schenectady, N. Y.
Major G. H. Stuts—Fort Haydes, Ohio.
Major P. H. Weiland—Medford, Oregon.
Capt. C. LeR. Taylor—Van Nuys, Cal.
Capt. H. J. Crigger—Charleston, W. Va.
Capt. W. N. White—San Francisco, Cal.

CO USAT REPUBLIC

Col. C. R. Norton

CO USAT CHATEAU THIERRY

Major J. P. Crehan

BATTLE MONUMENTS COMMISSION

Capt. E. O. Hopkins

RUSSIAN LANGUAGE STUDENTS

Capt. I. D. Yeaton
1st Lt. R. Park, Jr.

Colonel E. B. Hopkins, FA-Res., Wheeling, W. Va., strong supporter of the Field Artillery Association, recently addressed Fort Henry Chapter, ROA, on "The Second Army CPX," which he had observed.

MILITARY BOOKS

Following is a list of books on military subjects which are recommended for their professional value as well as interesting content:

	Price (Domestic postage included)
THE UNITED STATES ARMY IN WAR AND PEACE—*Col. O. L. Spaulding*	$6.00
WARFARE—*Spaulding, Nickerson and Wright*	3.00
PEN AND SWORD IN GREECE AND ROME—*Col. O. L. Spaulding*	2.00
ELEMENTS OF ORDNANCE—*Lt. Col. T. J. Hayes*	6.50
FROM SAINTS TO RED LEGS—*Heiner*	1.00
FIELD ARTILLERY: The King of Battles—*Maj. Gen. H. G. Bishop*	1.00
CARBINE AND LANCE, A HISTORY OF FORT SILL—*Nye*	3.00
R. E. LEE—*Freeman* (4 vols., each)	3.75
A MODERN MILITARY DICTIONARY—*Col. Max B. Garber*—Cloth	2.50
—Leather	2.75
THE STORY OF RECONSTRUCTION—*Henry*	5.00
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INFANTRY IN BATTLE	3.00
THE INFANTRY BATTALION IN WAR—*Lt. Col. Walter R. Wheeler*	3.00
CAVALRY COMBAT	2.50
MILITARY HISTORY OF THE WORLD WAR—*Col. G. L. McEntee*	7.50
THE SIEGE OF ALCAZAR—(*McNeill-Moss*)	3.50
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TOMORROW'S WAR—*Stephen Possony*	2.50

A reduction of 10% will be made to JOURNAL readers who purchase any of the above books through the U. S. Field Artillery Association.

The Association is in a position to obtain for its members not only books on military subjects but biographies and fiction as well, at a reduction of 10%.

The Soldier's Medal has been awarded to Private Paul H. Chamberlain, Battery D, Seventh Field Artillery, for "heroism displayed on the artillery range at Underhill, Vt., on May 26, 1938. During target practice of his organization, Pvt. Chamberlain, a cannoneer of a gun crew of Battery D, 7th field artillery, noticed that the fuze lead of a round of 75-mm. antiaircraft shrapnel, which was being prepared in the fuze setter, was smoking. He quickly turned the fuze setter and the round to safety, and loudly calling a warning to the other eight members of the gun crew, seized the shell, carried it to a heavy woods some distance away from the gun position, where he deposited it, and then withdrew to a place of safety. The utter disregard of personal safety and the presence of mind and coolness in the face of great danger to himself and the other members of the gun crew displayed by Pvt. Chamberlain prevented the possible loss of life which might have been occasioned by a premature explosion of the shell."

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